Martha's Vineyard Transportation Plan (MVTP) 2015-2040

DRAFT

Prepared by the Martha's Vineyard Commission and the Joint Transportation Committee

in cooperation with the

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Preface

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This **Martha's Vineyard Transportation Plan (MVTP)** is being developed in accordance with federal law which requires an "Metropolitan Planning Organization" (MPO) to have a transportation plan every four years. Although the island of Martha's Vineyard is not technically an urbanized metropolitan area under federal definitions, the Commonwealth of Massachusetts initiated comprehensive planning areas for all parts of the state back in the 1970's, and now considers each regional planning agency as an MPO, whether the federal minimum population of 50,000 residents is met or not. This allows an opportunity for all areas of the state to have local participants in the process, and Martha's Vineyard is pleased to be one of these MPO regions.

Why Plan?

A transportation plan is required by our federal and state partners, and having the transportation plan in place allows Dukes County / Martha's Vineyard access to federal and state transportation funding for transportation operations and improvements on the island.

The MVTP process is an opportunity for Martha's Vineyard to discuss issues and options, create a vision, goals, policies, and recommendations on our transportation system for a better fit with our local area. Martha's Vineyard is a special place for both residents and visitors, and much of the transportation system is still rural in nature, with slow speeds and courtesy required. It is a user friendly system for more than just vehicles and most want to continue without having traffic signals on the island.

The plan includes all modes of transportation –airplanes, ferry, cars, trucks, bicycles, and pedestrians, and the Dukes County area, the six towns on Martha's Vineyard and the Town of Gosnold.

View from Gosnold on Cuttyhunk Island

Oak Bluffs Harbor

Participants

Martha's Vineyard Metropolitan Planning Organization (MPO) also referred to as the Committee of Signatories

Stephanie Pollack	Secretary of Transportation, MassDOT
Thomas Tinlin	Acting Highway Administrator, MassDOT
Fred Hancock	Chairman, Martha's Vineyard Commission (MVC)
Alice Butler	Chairman, Vineyard Transit Authority (VTA)

Martha's Vineyard Joint Transportation Committee

Voting Members

Adam Wilson	Town of Aquinnah
Daniel Greenbaum	Town of Chilmark
Stuart Fuller	Town of Edgartown
Richard Combra, Jr.	Town of Oak Bluffs
John Grande	Town of Tisbury
Jennifer Rand	Town of West Tisbury
Leon Brathwaite	County of Dukes County
Durwood Vanderhoop	Wampanoag Tribe of Gay Head/Aquinnah
Mark London	Martha's Vineyard Commission (MVC)
Angela Grant	Vineyard Transit Authority

Ex-Officio Members (Non-Voting)

Pamela S. Stephenson	Federal Highway Administration
Mary Beth Mello	Federal Transit Administration
Bryan Pounds	MassDOT Office of Transportation Planning (OTP)
Pamela Haznar, P.E.	MassDOT District 5 Project Development
Timothy Kochan	MassDOT District 5 Project Development/ Bike Ped Coordinator
Bridget Tobin	Steamship Authority
Sean Flynn	Martha's Vineyard Airport
David Whitmon	Oak Bluffs (Bicycle and Pedestrian)
William Veno	Martha's Vineyard Commission Senior Planner
Priscilla Leclerc	Martha's Vineyard Commission Senior Transportation Planner

Additional Participants in the transportation planning process:

- Bicycle -Pedestrian Advisory Committee (BPAC)
- The Healthy Aging Task Force Transportation Workgroup
- Martha's Vineyard residents who completed the survey and / or participated in public meetings
- All Island Planning Boards, February 11, 2015 meeting
- Public

Martha's Vineyard Transportation Plan (MVTP) 2015-2040

Endorsement

We, the undersigned members of the Martha's Vineyard MPO, do hereby endorse the ***Martha's Vineyard Transportation Plan for 2015-2040***.

Stephanie Pollack, Secretary and Chief Executive Officer
Massachusetts Department of Transportation — Date

Thomas Tinlin, Acting Highway Administrator
Massachusetts Department of Transportation — Date

Fred Hancock, Chairman
Martha's Vineyard Commission — Date

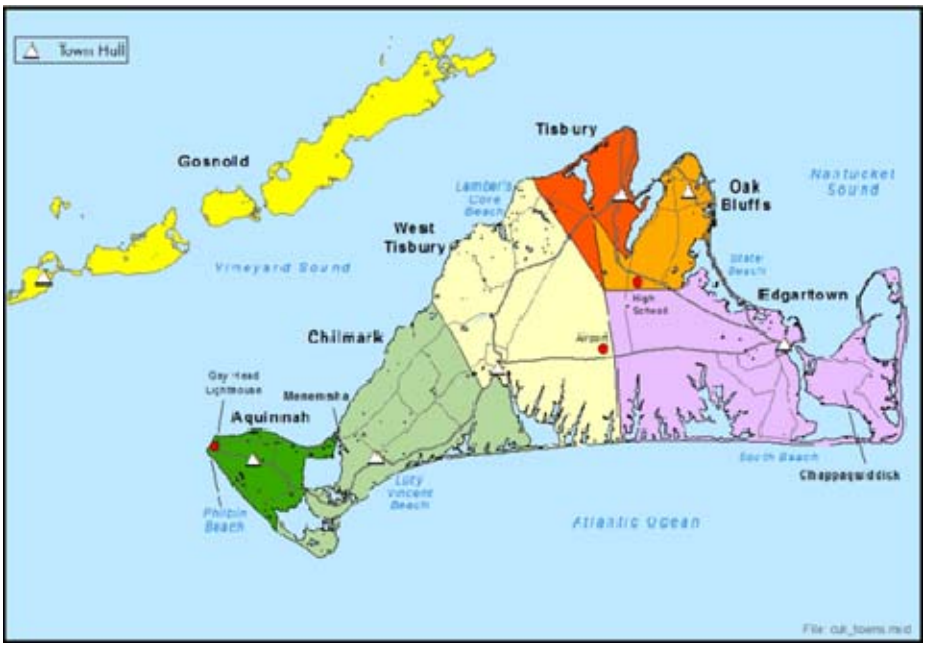
Alice R. Butler, Chairman
Vineyard Transit Authority — Date

1. Introduction

Dukes County includes seven towns, with six on the island of Martha's Vineyard, and Gosnold on the Elizabeth Islands. This is the planning area for the MVTP, and will generally be referred to as "Martha's Vineyard" in this MVTP.

1.1 Background on Transportation

Martha's Vineyard is an island with six towns, year-round transit service, two year-round ferry ports, and a main airport with scheduled commercial flights. The public road network comprises about 177 miles of paved surface roads and about 37 miles of Shared Use Paths. There are many gravel or dirt roadways connecting rural areas to the main roadways. The Martha's Vineyard Transit Authority (VTA) operates thirteen fixed route bus services year round, and coordinates with partners on additional transit services for medical appointments on island, and extending off-island to Boston.



Map of Dukes County seven towns: Aquinnah, Chilmark, Edgartown, Oak Bluffs, Tisbury, West Tisbury on Martha's Vineyard and Gosnold.

Gosnold has year-round ferry service between New Bedford and Cuttyhunk Island. Most of the residents and visitors get around the island on golf carts. There is also a heliport on the island. There are also charter boats that may be hired to run from Menemsha to Gosnold on Cuttyhunk Island and back.

As one of the Commonwealth of Massachusetts thirteen regional planning agencies / Metropolitan Planning Organizations (MPOs), the Martha's Vineyard Commission coordinates federal and state continuing, cooperative, and comprehensive (3C) transportation planning activities on Martha's Vineyard through an agreement with the Massachusetts Department of Transportation (MassDOT).

The decision-making body, or MPO, is responsible for conducting a continuing, cooperative, and comprehensive (3C) transportation planning process that results in plans and programs that consider all transportation modes and that support the communities' goals. The MPO must plan for the movement of both people and goods within the Region by all modes of travel, including roadways, public transportation, bicycles, ferries, airplanes, and pedestrians. It also plans for the connections linking these modes. In its role as the region's RPA, the Martha's Vineyard Commission provides staff support and follows federal

transportation planning regulations, including the participation of citizens and advisory groups in transportation decision-making. The Joint Transportation Committee (JTC) holds open public meetings, considers and votes on the transportation planning documents and projects.

While the plan considers all modes, the airport and its operations have access to potential federal and state funds under separate federal and state allocations from those sourced in our annually developed short range projects program, or, Transportation Improvement Program (TIP). Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) funds with state matching amounts and state funding for transit operations are the source of our TIP funds.

Transportation is basically people and freight moving about, which leads to relationships in the other parts of our built environment. A person moving about from one place to another is called a "trip", and the reason is the "trip purpose", so one trip may be "home to work", and the trip purpose is for work. People move about while going from home to school, shop, work, exercise, visit, and many other trip purposes. A good transportation system is akin to good people –reliable, efficient, and easygoing. For the island transportation system, there is a desire to tweak every project to fit in better with the unique place, while allowing people to move around. There are two basic aspects to the Martha's Vineyard transportation system:

1. Traveling between the island and anywhere else
2. Traveling around the island

This MVTP will provide an overview of both of these transportation system options, issues, needs, and recommendations. The MVTP will then consider the recommendations within the estimated financial resources for the MVTP.

1.2 Martha's Vineyard – the Place

Martha's Vineyard is a special place for its 17,000-some residents and its visitors who seasonally quadruple the number of people on the island. There is a general awareness and appreciation of the land along with its built environment on the island. There is a subtle connection and balance between the built and natural environment that appeals to many but is sometimes hard to define or prescribe in newer development proposals.

There are small, healthy downtowns in Edgartown, Oak Bluffs, and Tisbury, while West Tisbury has the more rural general store and farms. Aquinnah and Chilmark are rural in nature. Beaches and or docks are all around the island, with Tisbury (Vineyard Haven) the primary port, with year-round Steamship Authority ferry service for passengers, bicyclists, cars, and trucks.

In 2014, of the 100 square miles comprising Martha's Vineyard, 41% of the land was protected from development, 30% was developed, and 30% remained available or potentially available to be developed.

With a sensitive environment and, so far, clean groundwater supply, the boom in population over the last thirty years has been managed fairly well. The main downtowns have grown to include businesses that stock more for year-round resident needs. The non-profit Island Grown Initiative (IGI) grown out of an effort to promote local food sources and save a farm, with assistance from farmers around the island, in 2014

had the greenhouse and farm producing local food. The IGI are supplying local schools with homegrown food.

There is a sense of community, neighbors caring about neighbors and about the place. Gentle reminders from one resident to another not to use the chemicals to kill a perceived insect pest in our precious environment, but rather to let the June bugs have at it this week and they will be settle down and not be noticed.

2. Federal and State Laws / Guidance

2.1 Federal Transportation Legislation

The federal transportation legislation related to state and regional transportation planning began with the ***Intermodal Surface Transportation Efficiency Act of 1991*** **(ISTEA)**, includes additional federal legislation such as the ***Transportation Equity Act for the 21st Century*** **(TEA-21),** and the ***Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users*** **(SAFETEA-LU)**, along with interim surface transportation extension acts. The most recent federal transportation legislation is the ***Moving Ahead for Progress in the 21st Century Act*** (**MAP-21**) signed into law on July 6, 2012. The next legislation is under discussion by Congress / Congressional Committees.

One of the main reasons that ISTEA and its subsequent federal legislation were enacted was due to the growing interest in local involvement in transportation planning decisions at the local level. Many communities started speaking up during the construction of the nationwide highway system, and it was found to be more cost effective to have local participation in the process at the beginning to ensure that projects could move forward without delays.

MAP-21

MAP-21 continued basic programs, consolidated others such as Transportation Enhancements and Safe Routes to School into a new "Transportation Alternatives Program" , and established seven national performance goals for the Federal-Aid Highway program, as follows:

1. Safety—to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
2. Infrastructure condition—to maintain the highway infrastructure asset system in a state of good repair.
3. Congestion reduction—to achieve a significant reduction in congestion on the NHS.
4. System reliability—to improve the efficiency of the surface transportation system.
5. Freight movement and economic vitality—to improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.
6. Environmental sustainability—to enhance the performance of the transportation system while protecting and enhancing the natural environment.
7. Reduced project delivery delays—to reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

MAP-21 Planning Factors

Following from the national goals for transportation, the MAP-21 eight planning factors direct transportation planning efforts toward a sustainable, efficient, and comprehensive process.

1. Support the economic vitality of the United States, the States, non-metropolitan areas, and metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency
2. Increase the safety of the transportation system for motorized and non-motorized users
3. Increase the security of the transportation system for motorized and non-motorized users
4. Increase the accessibility and mobility of people and for freight
5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns
6. Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight
7. Promote efficient system management and operation
8. Emphasize the preservation of the existing transportation system

Federal guidance for plan development encourages both short range and long range options for an "integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand."

The MVTP outlines the existing transportation system, the existing usage and problem areas, and proposes objectives and options to improve or further study the transportation system. Much of the information in the MVTP is based on an ongoing transportation planning process that is based on regular discussions at the public meetings of the Joint Transportation Committee (JTC). The JTC consists of appointed representatives of the six Island towns, the Wampanoag Tribe of Gay Head (Aquinnah), Dukes County Commissioners, the Vineyard Transit Authority, MVC, along with non-voting members of the Martha's Vineyard Airport, the Steamship Authority, bicycle-pedestrian member, and members of the public. The Town of Gosnold, part of Dukes County and represented by the Martha's Vineyard Commission, comprises the Elizabeth Islands.

The JTC effectively operates as the Martha's Vineyard MPO that decides on transportation planning goals, projects, priorities, and funding, at their public meetings. The JTC votes on recommendations to the official MPO signatories. MVC staff then reports on the JTC recommendation at a televised MVC meeting. The official MPO signatories are:

- Secretary and CEO, Massachusetts Department of Transportation (MassDOT);
- Highway Administrator, MassDOT Highway Division;
- Chairman, Martha's Vineyard Commission;
- Chairman, Martha's Vineyard Transit Authority.

2.2 State Transportation Planning Legislation and Guidance

Regional Planning

In the early 1970's Massachusetts adopted the federal government's comprehensive, cooperative, continuing (3-C) transportation planning process. The intent of the 3-C process is to decentralize transportation decision-making by ensuring that "all reasonable and prudent alternatives to transportation problems are considered and analyzed adequately." Decisions must give full consideration to all impacts, emphasize physical, economic and social consequences and include the "participation of elected officials, public and private groups and individual citizens." Establishing an "open and participatory planning" process led to a Memorandum of Understanding (MOU) between state and regional representatives in 1980. The MOU resulted in the Joint Transportation Committee (JTC). The JTC purpose and responsibilities are to:

- Guide regional transportation decision-making,
- Serve as a forum for discussing all transportation issues and,
- Advise the Committee of Signatories – the Massachusetts Department of Transportation, The Martha's Vineyard Commission, and Martha's Vineyard Regional Transit Authority.

you/weMove Massachusetts

In 2008 the Commonwealth of Massachusetts adopted the youMove Massachusetts planning and public outreach initiative, which engaged the public in order to develop a high-level vision for transportation statewide. Based on public input, ten core themes were developed to guide the planning, design, and operation of the transportation system:

- Improve transportation system reliability
- Focus attention on maintaining the transportation system
- Design transportation systems better
- Encourage shared use of infrastructure
- Increase capacity by expanding existing facilities and services
- Create a more user-friendly transportation system
- Broaden the transportation system to serve more people
- Provide adequate funding and collect revenue equitably
- Minimize environmental impacts
- Improve access to the transportation system

WeMove MA proceeded to review transportation system conditions and financial resources in scenarios, and resulted in recommendations for transportation reform and performance management.

GreenDOT Policy Directive

In addition, MassDOT issued the GreenDOT Policy Directive in June 2010, which incorporates environmental concerns into transportation planning for a more sustainable system. The GreenDOT Policy has three main goals:

- Reduce greenhouse gas emissions,
- Promote the healthy transportation options of walking, bicycling, and public transit,
- Support smart-growth development.

2.3 Greenhouse Gas Analysis

Metropolitan Planning Organizations and the Global Warming Solutions Act

The Commonwealth's Global Warming Solutions Act (GWSA) of 2008 requires statewide reductions in greenhouse gas (GHG) emissions of 25 percent below 1990 levels by the year 2020, and 80 percent below 1990 levels by 2050. As part of the GWSA, the Executive Office of Energy and Environmental Affairs developed the Massachusetts Clean Energy and Climate Plan (CECP), which outlines programs to attain the 25 percent reduction by 2020 – including a 7.6 percent reduction that would be attributed to the transportation sector.

The Commonwealth's thirteen metropolitan planning organizations (MPOs) are integrally involved in helping to achieve greenhouse gas reductions mandated under the GWSA. The MPOs work closely with the Massachusetts Department of Transportation (MassDOT) and other involved agencies to develop common transportation goals, policies, and projects that would help to reduce GHG emission levels statewide. For example, one of the programs in the CECP is MassDOT's sustainability initiative known as GreenDOT. GreenDOT policy goals were developed in accordance with the GWSA, and are as follows:

- Reduce greenhouse gas (GHG) emissions
- Promote the healthy transportation modes of walking, bicycling, and public transit
- Support smart growth development

The Martha's Vineyard MPO shares in these goals and is working to meet the specific requirements of the GWSA regulation – *Global Warming Solutions Act Requirements for the Transportation Sector and the Massachusetts Department of Transportation (310 CMR 60.05).* The purpose of this regulation is to assist the Commonwealth in achieving their adopted GHG emission reduction goals by:

- Requiring MassDOT to demonstrate that its GHG reduction commitments and targets are being achieved
- Requiring each MPO to evaluate and track the GHG emissions and impacts of its Regional Transportation Plan and Transportation Improvement Program
- Requiring each MPO, in consultation with MassDOT, to develop and utilize procedures to prioritize and select projects in its RTP and TIP based on factors that include GHG emissions and impacts

Meeting the requirements of this regulation will be achieved through the transportation goals and policies contained in the 2016 Regional Transportation Plan, the major projects planned in the RTPs, and the mix of new transportation projects that are programmed and implemented through the Transportation Improvement Program. The GHG tracking and evaluation processes enable the MPOs to identify the anticipated GHG impacts of the planned and programmed projects, and also to use GHG impacts as a criterion in prioritizing transportation projects. This approach by the MPO is consistent with the greenhouse gas reduction policies of promoting healthy transportation modes through prioritizing and programming an appropriate balance of roadway, transit, bicycle and pedestrian investments; as well as supporting smart growth development patterns through the creation of a balanced multi-modal transportation system. All of the MPOs and MassDOT are working toward reducing greenhouse gases with plans, actions, and strategies that include (but are not limited to):

- Reducing emissions from construction and operations
- Using more fuel-efficient fleets
- Implementing and expanding travel demand management programs
- Encouraging eco-driving
- Providing mitigation for development projects
- Improving pedestrian, bicycle, and public transit infrastructure and operations (healthy transportation)
- Investing in higher density, mixed use, and transit-oriented developments (smart growth)

Regional GHG Tracking and Evaluation in RTPs

MassDOT coordinated with MPOs and regional planning agency (RPA) staffs on the implementation of GHG tracking and evaluation in development of each MPO's 2012 RTPs, which were adopted in September 2011. This collaboration has continued for the MPO's 2016 RTPs and 2016-19 TIPs. Working together, MassDOT and the MPOs have attained the following milestones:

- Modeling and long-range statewide projections for GHG emissions resulting from the transportation sector for use before final RTP endorsement. Using the Boston MPO's regional travel demand model and the statewide travel demand model for the remainder of the state, GHG emissions will be projected for 2020 no-build and build conditions, and for 2040 no-build and build conditions. The results of this modeling will be available before the endorsement of this RTP and the MPO staff will present on the results to the MPO membership before a vote on endorsement.
- All of the MPOs will include GHG emission reduction projections in their RTPs, along with a discussion of climate change and a statement of MPO support for reducing GHG emissions as a regional goal.

MassDOT, using its statewide travel demand model, will provide the Martha's Vineyard MPO with statewide estimates of CO_2 emissions resulting from the collective list of all recommended projects in all the Massachusetts RTPs combined (and supplemented by CO_2 emission reduction results for smaller, "off-model" projects supplied by the MPO). Emissions will be estimated using the new (2014) MOVES model, and also incorporate the latest planning assumptions including updated socio-economic projections for the Commonwealth.

The project mix from this RTP (and all other RTPs) – modeled for both 2020 and 2040 using an Action (Build) vs. Baseline (No-Build) analysis to determine the CO_2 emissions attributed to all MPO's mix of projects and smart-growth land use assumptions – is expected to show a neutral shift toward meeting the statewide greenhouse gas emissions reduction goal of 25 percent below 1990 levels by the year 2020, and 80 percent below 1990 levels by 2050. The reason for the anticipated neutral shift is that early indicators have shown that major infrastructure projects, both individually and collectively, would not trigger a significant change in GHG emission levels.

Working closely with MassDOT, the Martha's Vineyard MPO continues to make efforts toward progress through planning activities to meet the GHG reductions targets and complying with the requirements of the GWSA. As part of this activity, the MPO will provide further public information on the topic and will continue to advocate for steps needed to accomplish the MPO's and Commonwealth's goals for greenhouse gas reductions.

2.4 Title VI Environmental Justice and Civil Rights

Title VI of the 1964 Civil Rights Act says that "…each Federal agency is required to ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving Federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion…" Executive Order 12898 takes Title VI further by saying that "… each Federal agency shall, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid 'disproportionately high and adverse' effects on minority and low-income populations." Applying the principles of environmental justice, regional planning opportunities include:

- Identifying residential, employment and transportation patterns of minority and low-income individuals and households.
- Improving public participation processes in order to involve minority and low-income populations in transportation decision-making.
- Providing essential transportation services to minority and low-income populations who do not have transportation to work, shops, childcare centers, recreation areas and other destinations.
- Ensuring that transit facilities and services deliver equitable levels of service and benefits to minority and low-income populations.

While Martha's Vineyard has a long history of racial, ethnic, and religious tolerance, the 2010 Census indicates that Martha's Vineyard is 91% white, with 3.2% of residents indicating more than one race, 3.6% Black or African American, 1.3% American Indian, and 0.9% Asian, and 0.1% Native Hawaiian and Other Pacific Islander. In 2013 estimates, 2.9% were listed as Hispanic or Latino of any race. There seems to be a perceptible, if transitory, increase in the Island's Brazilian community since the 2000 Census where 1% were listed as Hispanic or Latino of any race.

Two minority populations of note are the Wampanoag Tribe of Gay Head (Aquinnah), and the Black and African American community in Oak Bluffs. The Wampanoag Tribe of Gay Head was, until 2007, the only federally recognized tribe in Massachusetts, and owns substantial property in Aquinnah. Oak Bluffs has been a popular resort for African Americans for over 100 years, but just 4.3% of year round Oak Bluffs residents identified themselves as Black or African American, the highest figure for any Vineyard town. Those who identified themselves as of more than one race were similarly concentrated in Oak Bluffs.

While Martha's Vineyard serves many wealthy visitors and seasonal residents, as noted in section 3, the median household income of Vineyard residents ($45,559) is actually lower than that for Massachusetts as a whole, though slightly higher than the national median. The 2000 Census also indicates that the percentage of families (5%) and individuals (7.3%) living below the poverty line is lower than the national figures (9.2% and 12.4%). Families below the poverty line are higher in Tisbury (7.7%) and Oak Bluffs (6.2%) than elsewhere on the Island.

Thus, the minority and low-income populations on Martha's Vineyard are somewhat concentrated in Oak Bluffs, Tisbury, and Aquinnah. One would expect that these populations would have the same travel characteristics of the Island in general; i.e., jobs and commercial activity are centered Down-Island while residences are more dispersed. Individuals in Tisbury and Oak Bluffs who do not drive for whatever reason can avail themselves of the VTA bus system easily (three routes serve centrally-located Oak Bluffs, while six

routes serve Tisbury). These towns also feature the most-developed road systems, yet do not feature the types of transportation facilities that would adversely affect the environment or public health. Tisbury and Oak Bluffs also offer abundant cycling and pedestrian options (though these are a focus of improvement plans; see sections 10 and 17).

Aquinnah, much more rural and somewhat remote, offers an abundance of natural beauty, but fewer transportation options. The state road network connects Aquinnah to the rest of the Island, and the VTA serves Aquinnah with one route.

2.5 The MV Transportation Plan (MVTP) Planning and Outreach Process

This version of the Regional Transportation Plan was prepared in a process that started in 2014 and was completed in the summer of 2015. The public outreach effort described in this section involved the participation of many Island individuals and groups. The process also ensured consistency with other regional and local plans.

- Joint Transportation Committee: The Joint Transportation Committee, made up of representatives of all Island towns, the Wampanoag Tribe, the VTA, and the MVC, was responsible for coordinating the plan update process and, recommending the final plan. The JTC built on the efforts of previous planning efforts outlined on the MVC website.
- Town and Public Participation: In addition to the above efforts, town boards, the County of Dukes County, and the general public were invited to participate in various other ways. First, the previous RTP was forwarded directly to the Selectmen and Planning boards of each town and the Tribe, inviting comments and suggestions. An online transportation survey was conducted with over a hundred responses by MVC Commissioners and staff; town selectmen, board members and staff; other public officials, and members of the public. A summary of the results is found below and the complete results are available on the MVC website. A public meeting on the MVTP update was held on March 4, 2015 at which the previous plan was discussed and public input was sought about what should be in the updated version of the plan. The public was informed of the draft RTP through advertisements in both Island newspapers and a press release. A second public meeting to hear public comments on the draft plan was held in July 2015.
- MassDOT: MassDOT provided comments on the RTP throughout the process.
- Island Plan: This MVTP includes recommendations from and is consistent with Martha's Vineyard Island Plan, the regional comprehensive plan for Martha's Vineyard adopted in 2009, which benefitted from the work of the Island Plan Transportation Work Group. This Work Group included participation from town boards, non-profit organizations, and interested individuals, and benefitted from a series of public forums and committee meetings An important part of this comprehensive planning effort was to deal with the interrelation between transportation planning and other topics, especially development and growth on the Island.

- Bicycle Pedestrian Advisory Committee: The bicycle/pedestrian and complete streets sections reflect discussions of the Bicycle Pedestrian Advisory Committee, established by the Joint Transportation Committee. The BPAC continues to advocate for alternative modes and provide input on transportation matters.
- Formal Review Process: The Martha's Vineyard Joint Transportation Committee released a draft version of the MVTP for public comment on June 17, 2015. Public notice was given in local newspapers of a 30-day public review period following release of the draft version. The full document was made available on the MVC website, at the MVC town offices, and in each town library. Comments received during the formal review process are outlined in the Appendix.
- Martha's Vineyard MPO (Committee of Signatories): The final version of the plan was approved by the Martha's Vineyard MPO in July 2015. This committee, made up of The Massachusetts Department of Transportation, the Martha's Vineyard Commission, and the Martha's Vineyard Regional Transit Authority, named the membership of the Joint Transportation Committee (JTC) and endorsed the final plan in September 2011.

The MVTP strives for inclusion of the transportation needs of all the Island's citizens. Members of the public, including minorities and low-income individuals, have been encouraged extensively to become involved in transportation issues on the Vineyard. The Joint Transportation Committee and the VTA Advisory Board include representatives from the Tribe, minorities, and women. The process of transportation planning is truly ongoing on Martha's Vineyard, and informal comments were considered in the document development process, along with the input at more formal public and JTC meetings. Other efforts at local planning boards and through the Healthy Aging Task Force workgroups are also part of the input.

It should be noted, however, that while all project proposals are considered, there is a limited amount of estimated financial resources available for Martha's Vineyard from federal and state sources, and therefore, the recommendations which need to fit within our financial resources may not satisfy every need. Our federal and state partners are in tight budgetary times, and performance measures are needed to indicate that the public is benefitting from the project decisions. The planning process must consider the greater public benefits of projects and operations when the potential projects are considered for recommendation.

2015 Transportation Survey

Results for each question are in order of frequency.

1. *TRANSPORTATION CONCERNS: How high a priority is it to you that each of the following be improved or protected from deterioration?*
   - *High: Ferry service. Road safety. Pedestrian facilities. Bicycle accommodations off road. Scenic impacts of roadside viewscapes (vistas, fences, buildings, stone walls, fields).*
   - *Medium: Bus (VTA) service. Scenic impacts of roadways (lane and shoulder widths, guardrails, road signs). Road and bridge maintenance and repair. Bicycle accommodations on road. Road congestion. Roadside vegetation.*
   - *Low: Harbors and boating. Roadside utility poles. Airport and air travel. Taxis.*
2. *TRANSPORTATION POLICIES: To what extent do you agree or disagree with the following statements?*
   - *Strongest Agreement:*
     - *Free shuttle bus service should be expanded, linking downtowns to their park-and-rides and newer commercial areas.*
     - *Park-and-ride lots should be added and/or expanded.*
     - *Roundabouts should be installed at some intersections to facilitate traffic flow*
     - *Road shoulders in rural areas should be widened to better accommodate bicyclists and pedestrians.*
   - *Agreement:*
     - *Turning lanes should be added in some congested stretches of roads.*
     - *Traffic signal lights should not be installed on Martha's Vineyard to preserve the Island's distinct character.*
   - *Disagreement:*
     - *In most areas where speed limits are 45 mph, they should be reduced to 35 mph.*
     - *Road shoulders in rural areas should be as narrow as possible to preserve scenic values.*
     - *Traffic signal lights should be installed at some intersections to facilitate traffic flow.*
     - *Parking meters should be installed on major shopping streets.*
3. *BICYCLE ACCOMMODATION: To what extent do you agree or disagree with the following statements?*
   - *Strongest Agreement:*
     - *The network of off-road bike paths (Shared Use Paths) should be completed so the centers of Vineyard Haven, Oak Bluffs, and Edgartown are linked to each other.*
     - *Bicyclists are best accommodated in bike paths or Shared Use Paths that are physically separated from the roadway.*
   - *Agreement:*
     - *There should be good bicycle accommodation both on-road and with off-road paths.*
   - *Disagreement*
     - *Bicyclists are best accommodated in wide shoulders.*
4. *CONGESTION: How much of a problem is congestion on the following roadway sections or intersections?*
   - *Very Serious: Beach Road, Five Corners Intersection and Ferry Terminal Area, Tisbury. Intersection of Edgartown-Vineyard Haven Road / State Road / Look Street, Tisbury. Beach Road / Edgartown - Vineyard Haven Road. Intersection (The Triangle), Edgartown.*
   - *Serious: Upper Main Street, Edgartown. Downtown Edgartown. intersection of Main Street and State Road, Tisbury. downtown Oak Bluffs (Circuit Avenue, Harbor, ferry area, Seaview), Oak Bluffs*
   - *Occasional or Rarely a Problem: Upper State Road, Tisbury. Edgartown - Vineyard Haven Road / Barnes Road Intersection (roundabout), Oak Bluffs.*
5. *SAFETY: What do you feel are the most dangerous intersections and stretches of roadway, for cars, bikes, and/or pedestrians?*
   - *Most Dangerous: Five Corners in Vineyard Haven. Look / State / Edgartown Vineyard Haven Road Intersection in Vineyard Haven.*
   - *Dangerous: The Triangle in Edgartown. Beach Road (drawbridge to Five Corners) in Vineyard Haven. Vineyard Haven Ferry Terminal and Water Street. State Road / Main Street Intersection in Vineyard Haven.*
   - *Somewhat Dangerous: Oak Bluffs Ferry Terminal Area. Upper State Road in Vineyard Haven. Old County / State Road Intersection in West Tisbury. Upper Main Street in Edgartown.*
   - *Slightly Dangerous: State Road / Edgartown West Tisbury Road Intersection in West Tisbury. Beach Road in Edgartown.*

2.6 Performance Measures for Martha's Vineyard

Performance measures are like report cards on how the transportation system is changing based on the improvements from the planning process. The specific measures or data points are indicators of whether there is success in an improvement. These performance measures were developed for MV:

Safety: Promote greater safety for all modes.

- 10 years: Reduce the latest 3-year annual average of injury crashes by 10%.
  (The latest 3-year injury average crash rate is 47.3, so the target would be 42.6)

Alternate Modes / Livability / Sustainability: Encourage use of transit, bicycling, and walking.

- 10 years: Increase VTA annual ridership by 10%.
- 10 years: Implement improvements to 2 transit stops and related pedestrian/bicycle access within a ¼ mile.
- 10 years: Close 1 gap in the Shared Use Path (SUP) network.
- 25 years: Double share of transit, bicycling, and walking in the region by 2040

Congestion: Monitor and reduce roadway congestion where average delays are over an acceptable level.

- 10 years: Monitor travel times and reduce average delays at the top 3 congested locations by 5%.

Infrastructure Improvements: Maintain and improve transportation infrastructure for improved reliability and environmental benefit.

- 10 years: Reduce the number of SSA ferry trips cancelled because of mechanical problems by 10%
- 10 years: Implement two projects that improve stormwater management to reduce flooding.
- 10 years: Improve effectiveness of barriers between existing SUPs and roads for 1 mile.

Character: Maintain, respect, and reinforce the scenic, historic, and natural values of the Island roads.

- 10 years: Adopt standards for roadway design and vegetation management adapted to the distinct character of Martha's Vineyard.

Efforts will continue on developing the performance measures for the island, and the related information, e.g., for congestion an acceptable level of delay will be determined with the JTC, but it may be necessary to look at what acceptable levels are in summer versus winter, as the year round island population grows.

2.7 Criteria for Project Prioritization

Many sections in the RTP include lists of proposed actions. The Joint Transportation Committee uses the following criteria to evaluate and prioritizing projects, and for selecting which ones should be in the long range plan and Transportation Improvement Program. In brackets is the relative weighting assigned to each criterion.

- Safety: Promotes greater roadway, bicycle and pedestrian safety (3).
- Alternative Modes: Favors the use of modes of transportation other than the private automobile (2).
- Congestion: Reduces traffic congestion with physical improvements, particularly at the most problematic locations (2).

- Infrastructure Improvement: Reconstructs deteriorated existing road and bridge infrastructure, improves drainage, enables American with Disabilities Act (ADA) compliance, increases amenities (2).
- Project Readiness: A measure of the project's ability to move forward (2).
- Character: Respects and reinforces the scenic, historic, and natural values of the Vineyard (1).

The JTC also considers the extent of use and whether it promotes or conforms to other goals of this Regional Transportation Plan such as intermodality and livability.

3. Martha's Vineyard Overview: Population, Housing and the Economy

3.1 Island Overview

Martha's Vineyard is a 100-square-mile island located three miles off the coast of Cape Cod. Its topography, in fact its very existence, results from its location at the southern extremity, or terminal moraine, of the part of North America covered by ice during the last Ice Age. Home to the Wampanoag Tribe, it was settled by Europeans in the middle of the 17th Century.

Today, year-round residents, seasonal residents – many of whom own second homes on the island – and hundreds of thousands of short-term visitors live on or come to the Island, attracted by the natural, ecological, historical, and cultural values that define the beauty and character of Martha's Vineyard.

Each of the Island's towns reflects its origins: Edgartown as the home of master seamen and the seat of County government; Tisbury as the Island's gateway and market town, West Tisbury and Chilmark as agricultural villages, Aquinnah (formerly Gay Head) as the Wampanoag tribal settlement and a fishing village, and Oak Bluffs as the first summer resort. Three-quarters of the Island's population is concentrated in the three "Down-Island" towns: Tisbury, Oak Bluffs and Edgartown, each with a busy commercial town

center. Vineyard Haven in Tisbury serves as the Island's main port, seconded by Oak Bluffs. The three "Up-Island" towns, West Tisbury, Chilmark and Aquinnah are more rural in character.

3.2 Population and Households

Population Growth

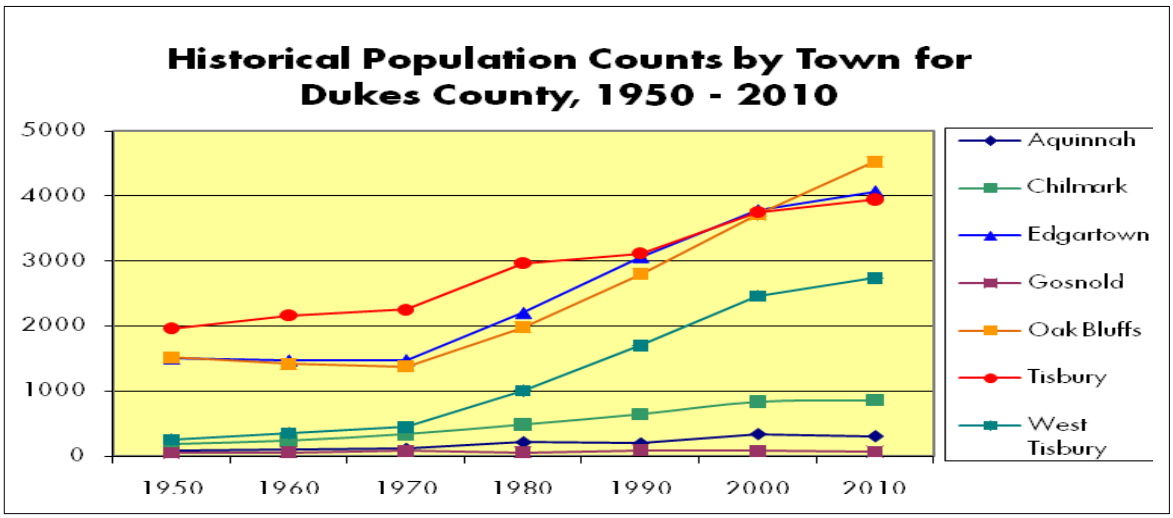
- The Island's population grew slowly from 1900 to 1970. Since 1970, Martha's Vineyard's year-round population has grown significantly, far outpacing most other regions. This is seven times faster than Massachusetts generally, and three times faster than the country as a whole. Although the pace of growth on the Vineyard has slowed dramatically in the last decade, it was the fastest growing county in the Commonwealth.

- Each decade from 1970 to 2010, Martha's Vineyard's year-round population grew about a third, for a total of 86% (30% in the 1980s, 30% in the '90s, and 10% in the '00s). In 2010, Dukes County's population increase of 16,535 represents a 10% increase since 2000.

Figure 3: ***Year-Round Population - 1900 to 2010***

	1900	*1950*	*1960*	*1970*	*1980*	*1990*	*2000*	*2010*
Aquinnah	*173*	*88*	*103*	*118*	*220*	*201*	*344*	*311*
Chilmark	*324*	*183*	*238*	*340*	*489*	*650*	*843*	*866*
Edgartown	*1,209*	*1,508*	*1,474*	*1,481*	*2,204*	*3,062*	*3,779*	*4,067*
Gosnold	*N/A*	*N/A*	*N/A*	*83*	*56*	*98*	*86*	*75*
Oak Bluffs	*1,100*	*1,521*	*1,419*	*1,385*	*1,984*	*2,804*	*3,713*	*4,527*
Tisbury	*1,149*	*1,966*	*2,169*	*2,257*	*2,971*	*3,120*	*3,755*	*3,949*
West Tisbury	*442*	*260*	*360*	*453*	*1,010*	*1,704*	*2,467*	*2,740*
Total	***4,397***	***5,526***	***5,763***	***6,034***	***8,879***	***11,541***	***14,987***	***16,535***

Source: U.S. Census



- In 2000, the year-round population for Martha's Vineyard was 14,901 and in 2010 the Island's population grew to 16,460 which was a 1% annual growth rate
- Between 2000 and 2010, Oak Bluffs had the highest growth rate on the Island at 22%, (from 3,713 to 4,527) double that of the island-wide rate. West Tisbury experienced the second highest growth of 11% over the past decade (from 2,467 to 2,740).
- In 2000 and 2010 Census, 75% of the Island's year-round population resides down-island in Oak Bluffs, Edgartown, and Tisbury respectively.

Age

- The Vineyard's year-round population is the second oldest to Barnstable County in Massachusetts. The median age for Dukes County in 2010 is 45.3 compared to 39.1 for Massachusetts and 49.9 for Cape Cod.
- The Vineyard has 20.8 percent of its population between the ages of 15 to 35 while Massachusetts has 27.3 percent (down from 44.2 in 2000) while the population over 60 was 23.6% for Dukes County and 19.5% for Massachusetts.
- The "baby-boom" cohort born between 1945-1955 was mostly in the 45-60 age bracket (25.9%) in the 2010 Census. Since 2010, many of these individuals have already begun to hit retirement.
- In 2000, there were 2,708 residents over the age of 60 while in 2010 there was a 44% increase to a total of 3,902 individuals over the age of 60.
- In 2010, 16% of the Island's year-round population was over 65. The 65+ population is projected to double by 2030 to 32% of the Island's year-round population according to the University of Massachusetts' Donahue Institute
- For every year-round resident, one out of six residents was over the age of 65 by 2030 it is projected that this ratio will be one in three (32%) according to the University of Massachusetts' Donahue Institute
- The fiscal implications of an aging population as well as the demand for Health and Social Services will place great strains on the Island towns as well as the entire Island community
- The housing demand for both the aging population and the workforce needed to provide serves to the Island's aging population has been identified as a high priority issue by the Healthy Aging Task Force

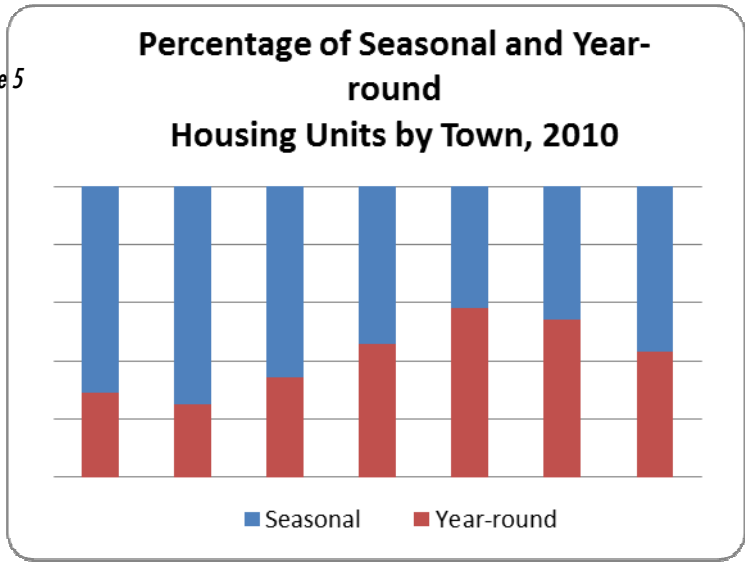
Income

- The Vineyard's year-round population's income is on par with the Commonwealth as a whole. In 2013, the median household income for Dukes County was $66,288 while the state was $66,866 while the median household income for the United States was $53,046. The state's highest household median income was Norfolk County $84,916 and Berkshire County was the lowest household median income $48,450.
- In 2010, the Dukes County median household income was $62,407 while the median family income was $77,231.
- In 2010, more than one quarter (1,449) of all households 5,530 in Dukes County earned under $35,000 annually while
- In 2010, Fifty percent (712) of those households earning less than $35,000 were 65 years or older. (An income of $35,000 is considered very low income by HUD's standards)
- In 2010, 794 of those households earning less than $35,000 owned their own home while 424 of those households were renters.

- Given the Island's aging and income demographics, the need for state and federal assistance for housing, health, and social services will grow triple in the next 20 years.

Seasonality

Figure 5



- As a seasonal and tourist community, the population changes dramatically from one season to the next.
- In 2010, about 57% of the 17,188 homes in Dukes County are seasonally occupied (see Figure 3).
- The Vineyard's seasonal housing occupancy rate at 57% is second to Nantucket's at 64% of the 14 counties in Massachusetts.
- The fact that 43% of the Island's housing stock is occupied year-round is a testament to the tremendous demand for seasonal homes in a highly desirable vacation and retirement destination. This strong demand equates to high cost of housing and cost of living.
- In 2010, of the 7,368 occupied housing units 66.5% are owner occupied while 33.5% are renter occupied. The percentages for the state's 2,547,045 housing units – 62.3% owner occupied, 37.7% renter occupied.

Housing Stock

- Over 91% of the county's housing stock is single-family homes compared to a statewide average of 52% in 2010. The percentage of single-family homes in Cape Cod was 82% and 89% in Nantucket.
- Multi-family dwellings are located almost exclusively in Down-Island towns.
- In Oak Bluffs 98%, Tisbury 80%, of all homes are on town water while in Edgartown, it is about 65%.
- A small percentage of homes in Edgartown, Oak Bluffs and Tisbury are connected to town sewers.
- There are no town water and sewer services in the three Up-Island towns of West Tisbury, Chilmark and Aquinnah, except for a small water system in Menemsha (Chilmark).
- In 2010, the percentage breakdown of the county's total housing stock is as follows: Edgartown 31%, Oak Bluffs 26%, Tisbury 18%, West Tisbury 13%, Chilmark 9%, Aquinnah 3%, and Gosnold 1%.
- According to the 2013 MV Housing Needs Assessment, there are two distinct real estate markets on Martha's Vineyard: one real estate market is an "affluent real estate market" where home prices range between $300,000 - $600,000 and a second is a "luxury real estate market" where homes are priced in excess of $1,000,000.
- According to the 2013 MV Housing Needs Assessment, the Island's median home sale prices from 1997 – 2012 more than doubled from $205,000 to $535,000. A person earning the median household income of $62,407 could purchase a $310,000 home while the Island's Affordability Gap is $225,000.
- According to the 2013 MV Housing Needs Assessment, Dukes Count's Affordability Gap of $225,000 was second to Nantucket County's $646,000 statewide.

3.3 Economic Development and Employment

Seasonal, Visitor-Based Economy

- Martha's Vineyard is primarily a seasonal and visitor-based economy which is largely dependent on the tourism industry with a growing year-round economy.
- The driving force of the Island's economic base is the second home-owner. The second homeowners purchase goods and services often throughout the year.
- Second-home owners pay property taxes, but do not require the most costly of public services – education. This, and the philanthropy of the seasonal residents, allow for a much higher level of services on the Vineyard for both government and private sectors while enabling the towns to maintain a relatively low tax rate.
- Consumer spending can vary widely among sub-groups: year-round resident, seasonal resident, vacationer, transient (staying for less than a week), or day-tripper.
- The Martha's Vineyard Commission in partnership with the MV Chamber of Commerce and other Island non-profits on the Island have worked diligently to help expand the shoulder seasons with new and existing tourism opportunities that help support the hospitality sectors including restaurants and hotels/inns as well as the retail industries. Strong efforts have also focused on areas to help diversify the Island's economic base particularly within the Creative Economy sector which includes Arts and Culture in addition to supporting the Island's traditional industries of Farming and Fishing.
- Due to the tourist and seasonal nature of the Island, training and retaining a skilled workforce continue to pose serious challenges to Island employers.
- The extreme fluctuations in population from winter to summer place severe strains on the towns' infrastructure: water, sewer, solid waste, and especially the Island's road network.
- Since the 2007 national recession, the Vineyard's winter unemployment rates for 2009 and 2014 have exceeded double digits which peaked in January 2010 at 13.4 percent exceeding Massachusetts's rate at 9.5 and the U.S.'s rate at 9.7 percent for that month compared with 2014 February 11.8 while the state unemployment rate was 6.8 and the US was 6.7.

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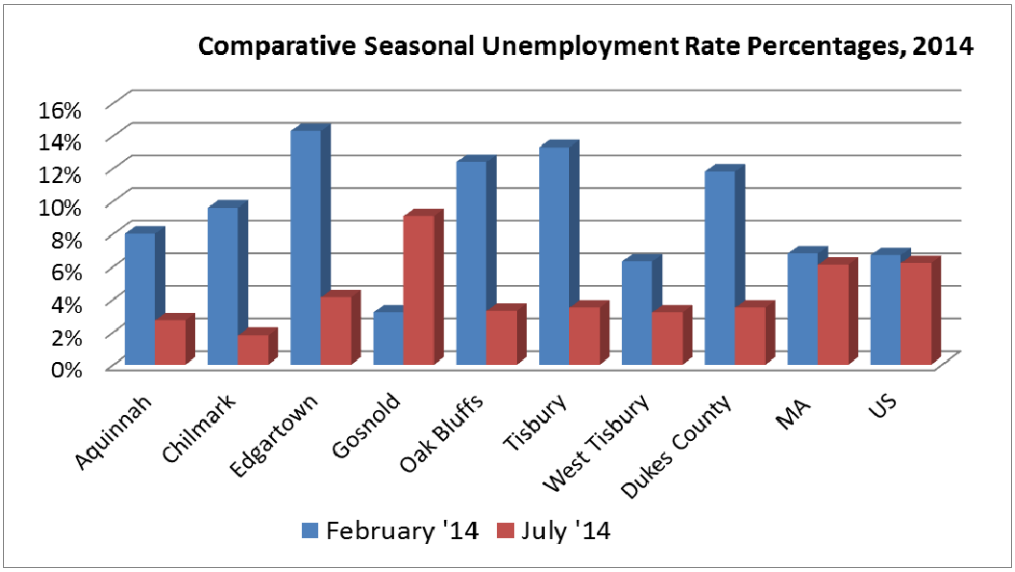
Figure 6



- The seasonal nature of the Vineyard has an adverse impact on housing availability and affordability, for both year-round residents and seasonal workers. The majority of dwellings are occupied seasonally (except in Tisbury and West Tisbury). The additional demand for summer housing brought on by an estimated 5,000 seasonal workers place more strains on the already limited rental market. The lack of readily available and affordable housing for year-round residents and seasonal workers affects the community as a whole. The resulting difficulty of maintaining a stable workforce has a significant negative economic impact on the Island.

Economic Growth

Population, Jobs, and Number of Employers by Town

	1990			2000			2010	2013	2013
	Pop	Jobs	Employers	Pop	Jobs	Employers	Pop	Jobs	Employers
AQ	201	59	12	344	77	14	311	84	9
CH	650	152	35	843	303	59	866	306	58
ED	3,062	1,451	226	3,779	2,004	308	4,067	2,557	362
OB	2,804	1,210	173	3,713	1,849	193	4,527	1,822	222
TI	3,120	1,971	324	3,755	2,327	361	3,949	2,702	388
WT	1,704	221	48	2,467	578	109	2,740	749	105
MV	11,541	5,064	818	14,901	7,138	1,044	16,460	8,220	1,144

- Large increases in jobs and employers from 1980 to 1990 reflect the Island's economic and building boom of the mid-80s, paralleling national rates.
- The same categories then grew at a slower and much more uniform pace compared to the1980's with the impact of a national recession during the late 80's and early 90s. Population and development growth resurged in the mid 1990's and early years of the 21st Century while the 2001 national recession was felt more mildly in the Cape and Islands region than other parts of the Commonwealth.
- With high unemployment rates and a decline in construction, Island businesses still struggle to cope with the impacts of the 2007 – 2009 recession more acutely in areas of retail, construction, and hospitality because of the Vineyard's visitor based economy.

Location of Economic Development

Businesses are largely concentrated in the Down-Island Towns. The primary economic activities, both seasonal and year round, take place predominantly within the town centers of Edgartown, Oak Bluffs, and Tisbury. Each town center is located around its own harbor and waterfront areas that are surrounded by dense commercial, mixed-use, and residential development. The waterfronts of Edgartown and Oak Bluffs, and to a lesser extent Tisbury, are comprised of primarily visitor-oriented establishments that typically close in the off-season. Many year-round retail and office activities are still located in these Down-Island towns, but have grown away from the historical commercial centers, most notably along and near Upper Main Street in Edgartown and Upper State Road in Tisbury.

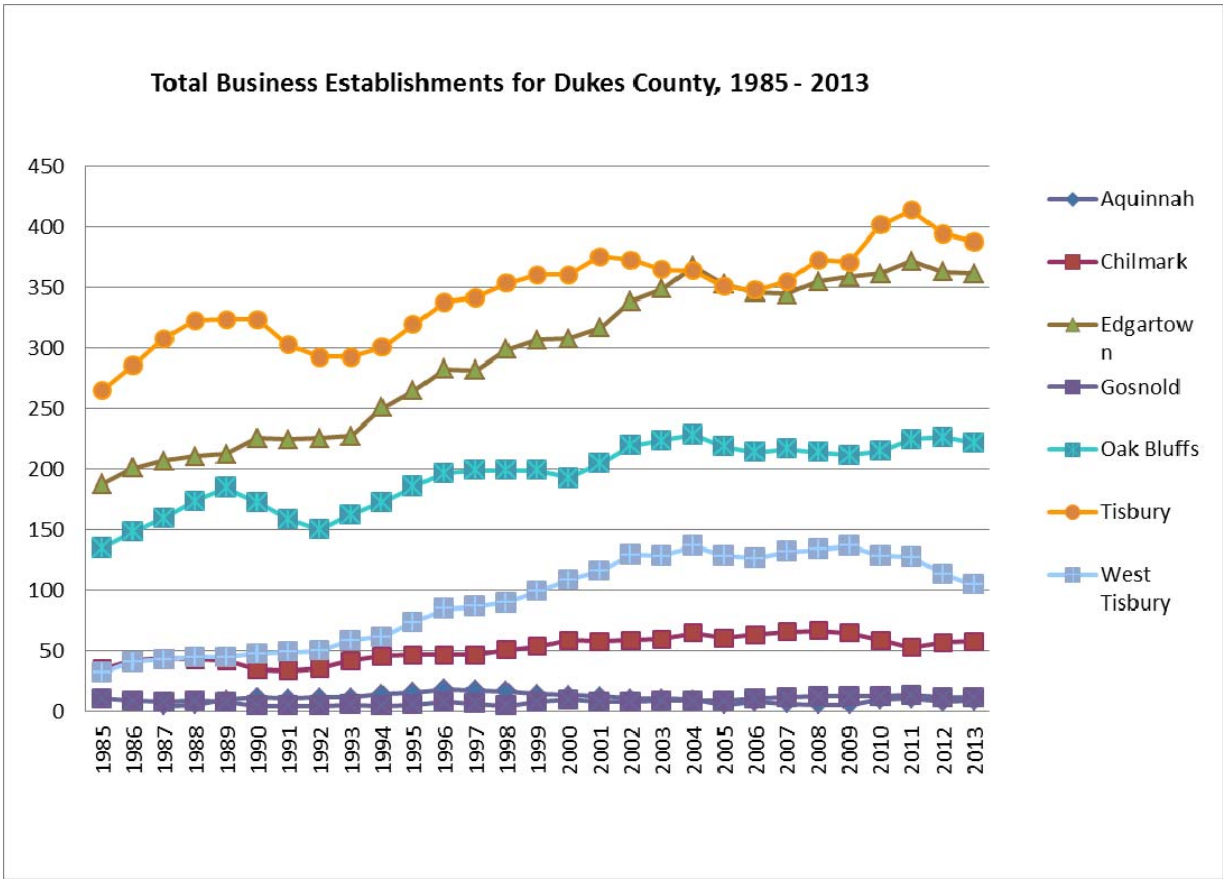
Other retail and office activities are located in smaller Up-Island centers such as the West Tisbury village center, Menemsha fishing village, and Chilmark's Beetlebung Corner. The newest and largest is North Tisbury center, relatively close to the Down-Island towns.

Industrial activities are found in various in-town and rural locations scattered in different parts of the Island, notably in the Airport Business Park. Traditional industries include farming and fishing. Although at reduced levels from previous generations, they contribute to the character of the Island and its appeal to visitors.

Martha's Vineyard has a considerable number of home businesses throughout the Island. The location of employment is also dispersed across the Island due to the businesses and activities related to the construction, renovation, maintenance, and landscaping of properties.

Growth of Business Establishments

- Between 1985 and 2013, the total number of business establishments have grown from 666 to 1,156 (employers reporting payroll withholding taxes) have had a net increase of 5.76% with an average annual growth rate of 0.56%.
- The percentages of establishments for the Dukes County have remained steady, despite the 2007 national recession.
- In 2013, the percentage of business establishments breakout by town as follows: Aquinnah 1%, Chilmark 5%, Edgartown 31%, Gosnold 1%, Oak Bluffs 19%, Tisbury 34%, and West Tisbury 9%
- In 2013, the three highest ranking percentage number of business establishment by category of industry were as follows: Construction 17% (199), Retail 16% (190) and Accommodations and Food Services 12% (136).
- Approximately two-thirds of the establishments on Martha's Vineyard employ between one and four individuals, according to the U.S. Census Bureau's *County-to-County Business Patterns*; 70% have 1-4 employees and 17% have 5-9 employees compared to 54% and 19% respectively for Massachusetts as a whole.
- According to the Census Non-Employer Statistics for Dukes County, since 1997 there have been 2,763 non-employers while in 2012 that figure has grown to 3,594



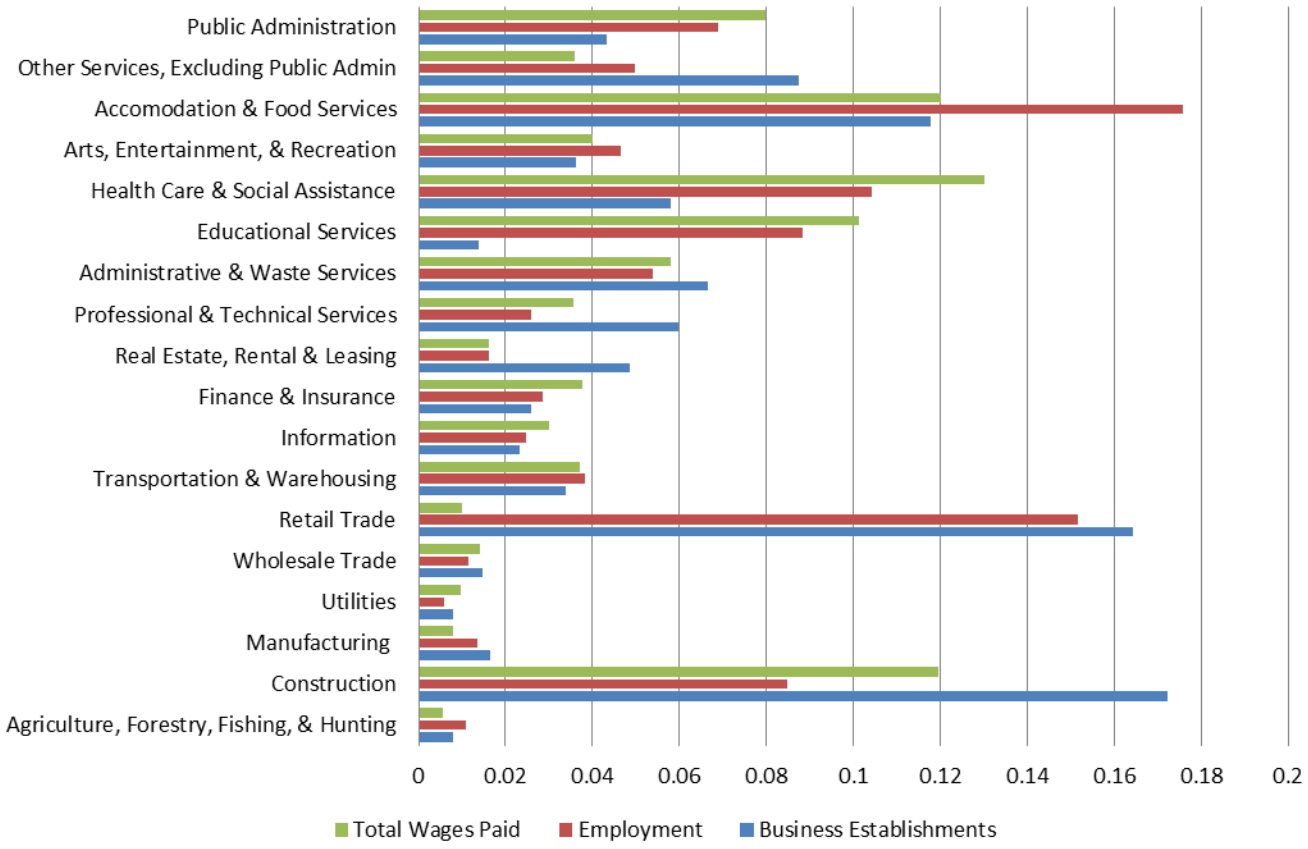
- The 2003 Business Survey conducted jointly by the MVC and the MV Chamber of Commerce indicated a larger business size (possibly because there was an under-representation of home businesses) with an average of five to six full-time employees in retail businesses and eight to ten full-time workers in non-retail businesses. The survey figures did not include part-time or seasonal workers.

Employment

- Vineyard retail, construction, and hospitality jobs have consistently accounted for 54% of all reported employment. (See Figure 9.) Note that employment statistics from State sources do not include sole proprietors, which in 2012 was 3,594 for Dukes County according to Census Bureau's Non-Employer Statistics).
- Between 2001 and 2013, the total number of employees has grown from 7,181 to 8,259 which is a net growth of 15% with an average annual growth rate of 1.18%
- In 2013, the three largest employees were as follows: Accommodations and Food Services 18% (1,452), Retail 15% (1,253), and Health Care and Social Assistance 10% (862).
- In 2013, Educational Service 9%, (729), Construction 8% (701), and Public Administration 7% (570) were in the top six employers
- Between 2001 and 2013, total number of annual wages paid has grown from $216,469,742 to $364,654,251 which equals an average annual growth rate of 5.7%

- In 2013, the top three largest percentage of wages paid were in the following categories: Health Care & Social Assistance 13% ($47, 617,152), Accomodations & Food Services 12% ($44,651,280), and Retail 12% ($44,539,801)
- In 2013, Construction 12% ($43,635,146), Education Services 10% Retail 15% (1,253) . ($36,910,703), and Public Administration 8% ($29,116,923) were among the top six highest percentage of wages paid.

Figure 9 **Percentage Totals of Business Establishments, Workforce, Total Wages Paid by Category of Industry for Dukes County, 2013**



3.4 Land Use and Transportation

A rapidly increasing population and changing patterns of development have a great impact on the nature of transportation on the Island. A generation ago, most residents lived in the small, village centers of the three Down-Island towns. Their everyday destinations, from grocery store to post office, were a short walk away, so car use was limited.

In the past 30 years, much of Martha's Vineyard's enormous residential and commercial growth took place on the outskirts of Down-Island towns, and Up-Island. The car became the only way to reach an increasing number of homes, jobs, businesses, and services (such as post offices), many of which relocated outside traditional town centers. This led to a significant increase in car traffic. With the potential for even more growth, traffic problems could get considerably worse, especially if development continues to take place in a dispersed pattern. The increasingly dispersed development means that people increasingly live in locations that are not accessible by public transit.

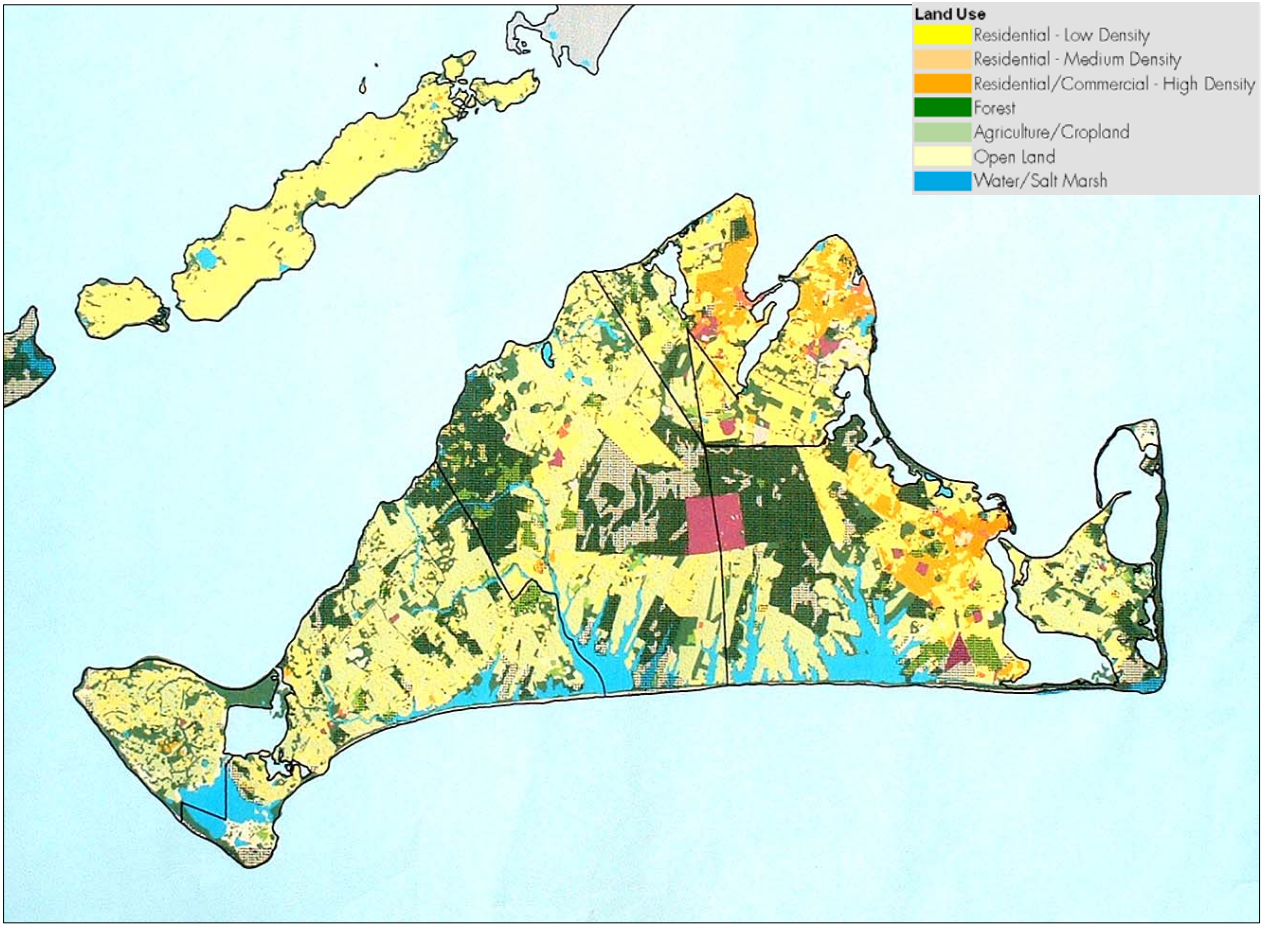
Presently, 33% of the land of the Vineyard is developed or is unbuildable (e.g. wetlands), 36% is protected open space, and 31% is "available" either for development or protection. Figure 11 depicts how current development patterns on the Vineyard could result in a landscape dominated by low-density residential land use, diminishing the forested and agricultural quality of the Island.

The process completed to prepare a comprehensive plan for the Vineyard – the Island Plan – looked at various issues related to future development, notably the location and rate of different types of development that would result from different combinations of market forces and mechanisms to manage growth. The Island Plan considers several possible futures, development scenarios based on different possible growth rates and patterns. These include the possibility of low, medium and high growth rates.

Possible patterns of development are:

- dispersed (continuation of present trends),
- compact (concentration of future development in already built-up areas, mostly Down-Island)
- compact/Island-wide (concentrations Down-Island and in other Island village locations.)

These scenarios could be used to evaluate, for example, the relative merits from a land use and transportation point of view, of having certain year-round businesses or small retail dispersed at village locations around the Island for the rural population pockets as compared to reinforcing existing downtown centers. As the rural population includes those over age 60 who are aging in place, this would allow walking to the store to acquire basic necessities, e.g., milk.



The Vineyard by the Numbers							
	AQ	CH	ED	OB	TI	WT	Total
Population Year-Round (2010))	311	866	4,067	4,527	3,949	2,740	16,460
All Housing Units (2000)	463	1,409	4,360	3,820	2,720	1,849	14,621
Seasonal Housing Units (2000)	70%	73%	64%	58%	39%	44%	56%
Annual New Home Starts (2000-08)	6	17	75	35	27	30	192
Affordable Housing Units % (2008)	26.5%	0.7%	4.9%	8.4%	6.2%	2.1%	5.9%
Affordable Housing Units (2008)	41	3	84	141	108	23	400
Businesses with employees (2008)	6	67	355	214	373	134	1,162
Jobs (2008)	73	271	2,407	1,657	2,555	806	7,814
Property Assessed Values - $ millions (2008)	778	3,166	7,559	3,130	3,129	2,985	21,027
Total Area - acres	3,960	13,553	18,184	4,680	4,142	16,878	61,127
Total Area - square miles	6.02	20.58	26.79	7.14	7.19	25.46	93.18
Population Density - per sq mi (2010)	52	42	152	634	549	108	177

3.5 Estimates of Future Growth

It is difficult to predict how the Island's population will grow in the next quarter century since the impact of the limited amount of land available for development will play an increasingly important role in mitigating the natural growth tendencies (births, deaths and migration).

In partnership with the Massachusetts Office of Transportation Planning (OTP) and the state data center, population and employment projections were developed first on a statewide level, and then estimated down to the town level for each MPO region. These projections are used in land use and transportation planning.

MVC looks at additional information, such as population by age and household and income information, along with annual housing building permits by town. MVC estimated the Households for 2020, 2030, and 2040, by reviewing the percentage of households to population for each town in both 2000 and 2010. Each Census year ratios were then averaged, and then the two results were averaged to come out with a ratio for projecting essentially level household ratio to the population growth.

Population	2000	2010	2020	2030	2040
Aquinnah	344	311	280	225	175
Chilmark	843	866	845	790	735
Edgartown	3,779	4,067	4,340	4,345	4,455
Gosnold	86	75	70	75	70
Oak Bluffs	3,713	4,527	5,435	5,950	6,535
Tisbury	3,755	3,949	4,315	4,500	4,800
West Tisbury	2,467	2,740	3,015	3,115	3,230
Total	14,987	16,535	18,300	19,000	20,000
Employment	**2000**	**2010**	**2020**	**2030**	**2040**
Aquinnah	78	82	85	90	100
Chilmark	303	292	315	320	350
Edgartown	2,000	2,355	2,540	2,600	2,750
Gosnold	49	43	45	50	50
Oak Bluffs	1,842	1,625	1,755	1,795	1,900
Tisbury	2,320	2,486	2,680	2,745	2,900
West Tisbury	575	816	880	900	950
Total	7,167	7,700	8,300	8,500	9,000
Households	**2000**	**2010**	**2020**	**2030**	**2040**
Aquinnah	141	145	126	101	79
Chilmark	382	398	380	355	331
Edgartown	1,582	1,794	1953	1955	2005
Gosnold	46	39	32	34	32
Oak Bluffs	1,590	1,989	2446	2678	2940
Tisbury	1,646	1,806	1942	2025	2160
West Tisbury	1,034	1,197	1357	1402	1454
Total	6,421	7,368	8,236	8,550	9,001

Since the Island's transportation capacities of roads, ferries, planes, and transit are based on the summer peak and most problems occur during this period, most of the transportation data and planning is based on this period. The summer population has been estimated for different categories of people, each of which would have different travel patterns. Off-season and shoulder-season figures are also important, especially for working out appropriate ferry, air and transit services for these time periods. Population during the shoulder season is growing as result of the increasing number of year-round residents, and, apparently, the number of seasonal visitors (possibly second home owners) coming in the spring and fall. Some transportation proposals that address short-term visitors (e.g. encouraging them to leave their cars behind) will do little to deal with the growing demands in the shoulder season and in the winter.

The MVC estimates that the summer population on a peak day is about four to five times the year-round population. This was estimated in two ways:

- by estimating the number of seasonal residents, vacationers, and guests based on the number of seasonal homes; adding the number of transients in hotels, inns, bed & breakfasts, and boats in harbors; and adding the number of day trippers including cruise passengers;
- by calculating the number of people that arrive and leave the Island each month, and calculating the increasing and decreasing cumulative totals.

3.6 Transportation Demand Projections

Federal Rules (23 CFR 450.322[b][1]) require that the transportation plan identify the projected transportation demand of persons and goods in the planning area over the period of the plan. The increase in population/visitors is expected to increase the demand for transportation, subject to certain limitations. The seasonal nature of the Vineyard is important to note, as the peak summer transportation needs impact the transportation infrastructure and need to be considered to maintain quality of life, livability and mobility.

Water Transportation

The key player in water transportation is the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA), which furnishes year-round ferry service from the mainland. As detailed in section 5, the SSA (and the other passenger-only ferry services) has experienced a slight drop in traffic since around 2000. The SSA has also limited vehicle spots in June, July, and August since 1997. The SSA has not forecast traffic since 2000, and for budgeting purposes the SSA assumes level traffic from year to year. While the Island's year-round population grows relative to the seasonal and visitor population, the traffic on the ferries will grow, but primarily in the off-season. It is also likely the growth will be less than proportional to the increase in population, especially for vehicles.

Air Transportation

The Martha's Vineyard Airport (MVY), as detailed in section 7, forecast robust growth in 2000, but the expected growth has not materialized to date, for a variety of reasons. The rate of growth MVY suggests is most sustainable is in the 1.5% annual range for both commercial and general aviation.

Automobile Transportation

As detailed in section 8, while there has been no comprehensive statistical analysis of traffic data, traffic on the Vineyard, while generally flat in recent years, has of late grown more in the off-season and in the less-developed areas of the Island than in the peak-season at locations already at or near capacity. This reflects the increasingly year-round nature of the Island, and these trends should continue. Since the RTP seeks to mitigate the impacts of peak summer traffic, the infrastructure should be sufficient to handle traffic at other times.

Buses and Taxis

One area of robust growth in recent years is the Martha's Vineyard Transit Authority (VTA). As detailed in the bus section, VTA boardings grew from around 71,500 in 1997 to roughly 1.2 million in 2014. After a few years of historic level ridership, the VTA has seen excellent growth in recent years. This is due in part to off-season increased use and service improvements. Peak-season ridership on popular routes is at or

near current capacity already. As the VTA service matures, and the Vineyard continues to develop, passenger growth will likely exceed population growth.

Bicycles and Pedestrians

While cycling and walking are already popular ways to experience the Island, growth is expected in these areas as facilities and other incentives improve. Section 10 details the list of improvements expected, but if the Vineyard is to accommodate a growing population while retaining the character that ensures its popularity, bicycling and walking will by necessity play a greater role in the future.

Freight

Freight transportation is very likely to mimic most closely the growth in the Vineyard's economy and population. Nascent local composting initiatives could reduce the volume of solid waste transported off-island and, combined with Vineyard lawn fertilizer regulations adopted in 2014, could reduce the amount of fertilizer transported to the island. A longer range issue affecting freight is the closure of the island's sand mine operation as it becomes mined out. That could increase barge traffic from off-island.

4. Livability in Transportation

4.1 Livability Background

There are many definitions of livability, with different organizations emphasizing concerns of interest to them, and with the concept evolving since it was first articulated in the 1970s. Typically, a livable place has housing, employment, schools, retail, and services within access without the necessity of having an automobile. In addition, the livable place will also have little or no crime, living wages, and affordable food and housing. There are even online rankings of top livable places that have developed methodologies to rank the places based on community size.

> A livable community is one that has affordable and appropriate housing, supportive community features and services, and adequate mobility options, which together facilitate personal independence and the engagement of residents in civic and social life.
>
> *American Association of Retired People*
>
> Livable communities offer:
> - choices in housing, shopping, recreation, and job opportunities;
> - transportation alternatives, interweaving spaces for pedestrians, bicycles, buses, trains, and cars;
> - a variety of open spaces and places for active recreation, walking, and public gatherings; and
> - a shared identity and sense of pride that results from the visual character and vitality of the community.
>
> American Institute of Architects

The U.S. Department of Transportation recognizes six livability principles:

1. Provide more transportation choices to reduce transportation costs, as well as environmental and public health costs.
2. Promote equitable, affordable housing by increasing the mobility and lowering the transportation costs of people or all ages, incomes, and ethnicities.
3. Enhance economic competitiveness by providing easier access to businesses, employment, education, and other needs.
4. Support existing communities by focusing on community revitalization, with the added benefit of protecting rural landscapes.
5. Coordinate and leverage Federal policies and investment that will support livability efforts nationwide.
6. Value communities and neighborhoods by investing in healthy, safe, and walkable neighborhoods – urban, suburban, and rural.

The U.S. DOT also lists six approaches to livability that coincide with livability in the transportation planning process:

1. Visioning means a forward-thinking, unconstrained, comprehensive, flexible, inclusive, and action-oriented approach to develop a clear understanding of transportation choices and potential outcomes that incorporate non-transportation issues.
2. Planning is the more concrete process of engaging stakeholders to reach the goals of livability, with an emphasis on real community input and an accounting of the true costs of transportation decisions.

3. Policy recognizes that livability goals may require changes to policies and even laws through a political process, and recognizing budgetary restraints.
4. Partnership is an understanding that the public, private, institutional, and civic sectors are all fundamental in supporting transportation projects to fruition.
5. Design requires bringing the concepts of livability to the technical work of the transportation planner and engineer, and may require that longstanding practices or standards by re-thought.
6. Implementation and funding brings the process of planning for livability to completion, often in a climate of severe budgetary constraints.

4.2 Martha's Vineyard and Livability

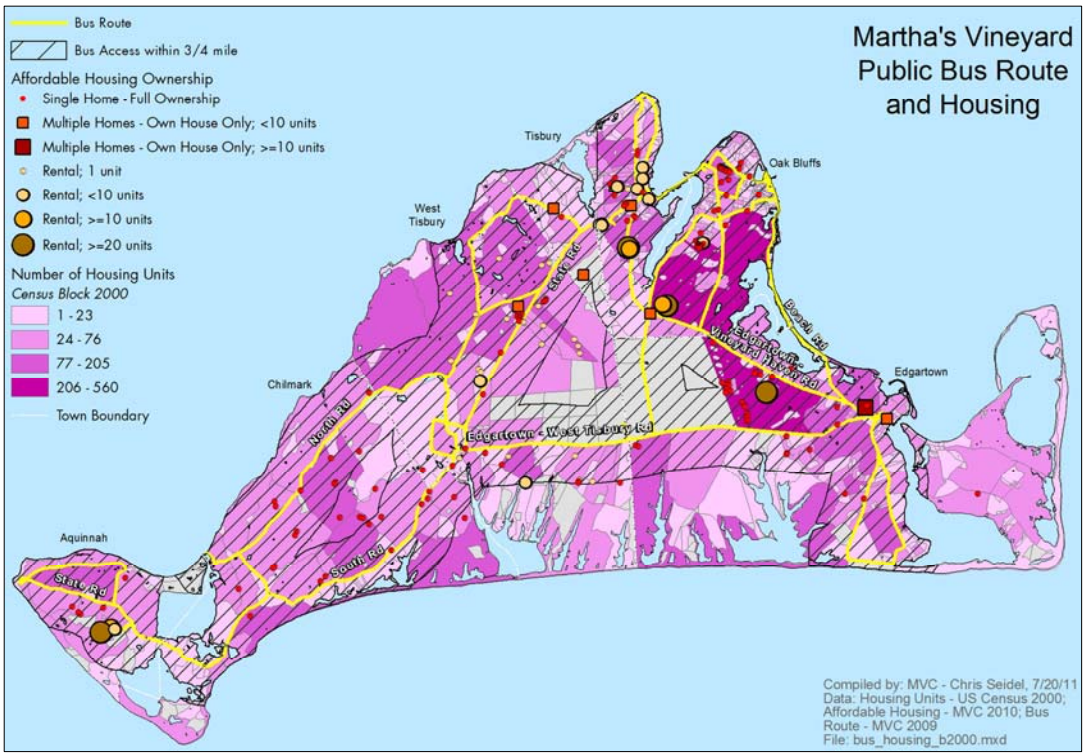
Martha's Vineyard has livable aspects as a community. Many places are within walkable distance, and the transit system is extensive compared to other similarly populated areas. The Vineyard avoided many of the changes to development patterns and social structure that took place in many parts of America and undermined livability. The Vineyard's 18th and 19th century "downtowns" – Edgartown, Oak Bluffs, and Vineyard Haven – were built to accommodate foot and horse traffic. As a small island, the Vineyard has been buffered from the more dire consequences of car-centric development. Since it is only about 100 square miles and is connected to "America" primarily by ferry, there was not the pressure to widen roads or build expressways.

The Island has retained much of its "people first, cars second" feel as a result of the strong desire of Islanders to protect both the historic character of the Island and the seasonal tourism economy that depends on Martha's Vineyard "feeling" different from the mainland. This wish to remain a place protected from certain types of "inappropriate" development has been aided greatly by the creation of the Martha's Vineyard Commission in 1974. The MVC, in addition to its function as a regional planning agency, has unusually broad powers to restrict and control development on Martha's Vineyard. Partly as a result of the MVC's activities, the Island's rapid growth in population and visitors has generally not translated into development that would erode the Island's livable characteristics, especially its walkable downtown areas.

Like many older communities whose development pattern was largely established before the age of the automobile, the down-Island towns – where most of the Island's population lives – offer access to a wide variety of services without a car. Walking, cycling, and public transit are a large component of the Island transportation network. Due to the physical constraint of vehicles carried on the Steamship Authority between the mainland and island, many people do arrive without a vehicle. This is an ideal vacation to try the car free test as a visitor. The Island's generations-old infrastructure cannot accommodate the personal vehicles of all the Island's residents and visitors in the summer months. While the activity, population, and visitation has grown extensively, the transportation infrastructure has remained nearly the same.

The Vineyard does have potential improvements to make in the area of livability. As a primarily rural and semi-rural Island, most recent development has taken place outside of the town centers in places that generally require a car for essentially all transportation. Many of the areas outside of the town centers that were developed in the last fifty years are less than hospitable to alternative modes. And while the smallish size of the Island and generally excellent bus transit favor alternative modes, only in the summer months when traffic and parking are difficult and the weather is fine does an uptick occur in walking, cycling, and transit use Island-wide.

But more than mere physical constraints, the character of Martha's Vineyard, the slower Island pace, the feeling of history, and the sense of community and peace that Island residents and visitors hold dear are goals that the concept of livability is meant to develop or reinforce. In many ways, the people and agencies of Martha's Vineyard have always thought in terms of livability, even if the term was not used until recently. For the Vineyard, it will be easier to preserve, and in some cases rediscover, the Island's "livability," rather than engage in the much harder process of trying to create a livable environment from one that was designed for the convenience of the automobile rather than the human being.



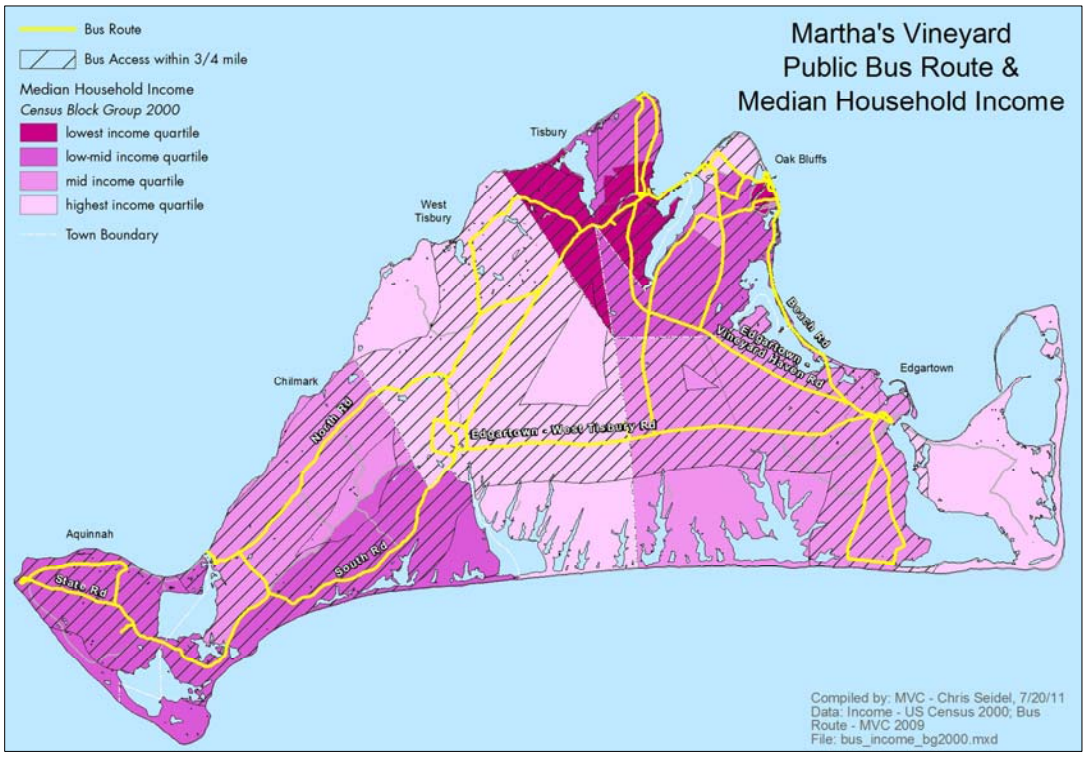
Terms such as livability, smart growth, new urbanism, walkable communities, healthy neighborhoods, complete streets, and others simply recognize that transportation planning is connected to other community goals – environmental goals, public health goals, economic goals, affordable housing goals, and others. Livability is particularly essential to the economic goals of Martha's Vineyard, as the Island must retain the "livable" character that makes it such a desirable destination for the visitors and seasonal residents that support the year-round population.

4.3 Livability Approaches on Martha's Vineyard

With livability as a primary transportation goal on Martha's Vineyard both by necessity and by popular demand, it is important to see how the Island's transportation and planning processes and initiatives match the principles and approaches set out by the U.S. DOT.

With respect to transportation choices, the Island makes a great effort to provide a variety of modes to all residents and visitors, though it remains a largely car-oriented society. The following chapters discuss the transportation modes in more detail, but while there is work still to be done especially in improving facilities for non-automobile transport, several transportation choices are generally available.

The Vineyard does suffer from lack of affordable housing, but considerable effort has been made in recent decades to try to improve this situation. Many affordable units are centrally located, including several major public developments, though the remote location of some new affordable housing can be seen as a step in the wrong direction from this point of view. However, given the very high property values in town centers, there is little choice other than seeking less expensive land outside of town. There may be future opportunities for downtown redevelopment of properties in disrepair; however, so far, the market remains fairly viable and owners are unwilling to sell at lower than market values.



An important element of livability is to ensure that a transportation system provides all sectors of the community good access to jobs and services. The maps showing the VTA bus routes with Housing and VTA bus routes with Income illustrate the extent of the network of VTA bus routes in relation to areas of high density housing as well as concentrations of lower-income residents. The highest concentrations of lower-income residents tend to be in the newer subdivisions built on the edges of the down-Island towns.

The economic competitiveness of the Island, as mentioned before, is not just predicated on a functional transportation system, but one that reflects the cultural and aesthetic desires of the tourism-based economy.

As the Island continues to develop, the focus of growth has been outside the existing communities of the down-Island towns, but the town centers remain strong. If the Island is to retain both its rural character and healthy environment, it is preferable to focus more development on already developed areas.
With six towns, one county, a regional planning agency, a federally recognized Native American tribe, and various other entities active in transportation policy and implementation on Martha's Vineyard, coordinating policy is a challenge, but the Island community generally works well together to meet common goals.
Most importantly, the Martha's Vineyard values it communities and neighborhoods; the strong sense of connection Vineyarders feel toward their Island make livability a common goal.

Island Transportation Vision in Comprehensive Plan:

Martha's Vineyard is a place where robust public input on civic matters is fairly common. In an effort to translate the strongly expressed opinions of the Island community into a coherent set of goals and activities related to development, the Martha's Vineyard Commission created the Island Plan as a way to bring community voices together in a three-year visioning exercise. Completed in 2009, the Island Plan charted goals, objectives, and strategies for eight general topics, including transportation. The Island Plan involved input from hundreds of Island residents and visitors. As stated above, the Island Plan's goal for transportation was to promote alternative modes. The five transportation objectives (and associated strategies) enumerated the Plan all support that goal, namely:

1. Promote and fund alternative modes of transportation;
2. Improve the efficiency and promotion of the Island's buses, taxis, and ferries;
3. Make town and village areas more pedestrian and bicycle friendly;
4. Expand and enhance a safe and efficient network of off-road shared-user paths, on-road bicycle routes, and walking trails; and
5. Use physical traffic calming techniques to slow traffic and improve safety in neighborhoods.

Livability in Development and TIP projects on Martha's Vineyard

The planning process on Martha's Vineyard is a cooperative effort of the the six towns and a number of regional, tribal, non-profit entities. The Martha's Vineyard Commission, as the Regional Planning Agency and the repository of planning expertise used by the towns, exercises a positive influence for livability concepts in transportation planning. A good example of this is the process for reviewing Developments of Regional Impact (DRIs), wherein the MVC often requires developers to take alternative modes into account. This may include simply improving transit access from the roadway to the building, adding bicycle parking on site, the location of the buildings and circulation, and/or adding walkways from the street to the building.

The MVC and towns also work to introduce livability issues into the design of Transportation Improvement Program (TIP) projects. For example, considerable community effort has gone into three current bridge design projects, namely the two Sengekontacket Pond inlet bridges and the Lagoon Pond Drawbridge, to ensure that the designs incorporate shared use paths, have good pedestrian accommodations including viewing and fishing areas, and harmonize with the character of their surrounding areas. Another example is the MVC's and towns role in the planned construction of a roundabout in Oak Bluffs.

The Martha's Vineyard Commission has been a leader in the area of revamping transportation policy on Martha's Vineyard, both in its reviews of DRI projects, and in providing the expertise and encouragement to towns, the county, and other entities operating on Martha's Vineyard. This Martha's Vineyard Transportation Plan provides the framework for transportation decisions on the Island including programming projects to be financed through the Transportation Improvement Program.
Partnerships: Few projects are accomplished on Martha's Vineyard without effective partnerships and this is especially true for transportation projects. For example, the towns of Oak Bluffs and Tisbury set up the Lagoon Pond Drawbridge Committee to work with MassDOT that included not only representatives of various town committees, but also members from other towns, the MVC, the Martha's Vineyard Bicycle and Pedestrian Advisory Committee, and the public at large. Another recent example of partnering on a transportation improvement that had a positive effect on livability is the redesign of the sidewalks in part of downtown Oak Bluffs. The gateway to the Island for hundreds of thousands of pedestrian visitors annually,

the downtown of Oak Bluffs featured many poorly designed and undersized sidewalks, often leading to pedestrians spilling out into the street. The revamping required buy-in from dozens of businesses, the state, and the Town. Completed in 2010, the new pedestrian areas calm traffic, provide improved pedestrian and bicycle amenities, dramatically improve aesthetics for visitors, and improve traffic flow.

The implementation and funding of transportation projects in a highly constrained budgetary environment requires a focus on what is most important to a community. As the principles of livability are widely recognized as critical to Island, the transportation priorities reflected in the Island Plan, the Transportation Improvement Program, and town projects largely support the goals of livability: better bus transit, improved cycling and walking facilities, and safer roads.

The principles and approaches that define the concept of "livability" are almost second nature on Martha's Vineyard. The Island's natural and human environments are critical to the economic and cultural life of the population. With robust planning expertise and a supportive population, the Vineyard is well-positioned to continue to improve the livability of the Island, even in the face of development pressure.

4.4 Complete Streets

As multimodal use is encouraged, there is a need to review the roadway environment with all users in mind. The latest Massachusetts Highway Department Project Development and Design Guide reworked the previous state design guidance to include encourage integration of all modes, more outreach during project development including visuals, and flexibility for context considerations, such as the environment, historic, land use, and rural or urban character.

The Bicycle-Pedestrian Advisory Committee (BPAC), a sub-committee of the Joint Transportation Committee, worked on reinvigorating themselves as a committee over the last couple of years and included discussions with local Mass In Motion and Safe Routes To School champions. BPAC then held a Complete Streets Forum in May 2014, and has subsequently drafted a Complete Streets Policy template for the Island towns.

Martha's Vineyard has infrastructure that was for the most part built ages ago, and some of the buildings in the downtowns are right up to the public spaces. It is also the stone walls and valuable trees that abut or at times encroach on the sidewalks or roadways. All these local aspects are what many people feel are the attributes that keep the Island special. Therefore, it is sometimes difficult for people not to shudder when an "improvement" or "policy" change is proposed that alters these attributes.

BPAC and the MVC continue to work toward Complete Streets efforts on each project, and on local discussions for improving the multi-modal project approach.

5. The Regional Transportation Network

5.1 Overview of the Island's Transportation Network

The characteristics of the regional transportation network, travel patterns and an inventory of the network's components are reviewed in this section. Essentially, the network consists of various means of transport to and from the Island by water and air, and various modes for movement around the Island, both on roads (private vehicles, public transit, tour and school buses, taxis) and off road (bicycles, pedestrians). Each of these modes is discussed in the upcoming sections of this plan, as are issues of intermodality (transfers from one mode to another) and information, as well as freight. As an island, the only means of access is by water (Steamship Authority and private ferries, cruise ships, barges, smaller boats) and air (commercial and general aviation). Travel on the Island is by car, bus, bike, motorcycle, moped, and foot. Travel flows to and on the Island vary considerably throughout the year, from relative ease during the winter with 15,000 year-round residents, to the summer intensity with more than 40,000 additional seasonal residents and visitors. The spring and fall shoulder seasons are in between, and increasingly active.

5.2 Objectives

The overarching goal is to establish and maintain a transportation system that is safe, reliable, convenient, accessible, economical, affordable, and is consistent with the Vineyard's scenic, historic and natural resources.

Specific objectives are as follows:

- Promote a variety of transportation options that efficiently meet the mobility needs of all of the Island's residents and visitors using the Vineyard's existing transportation infrastructure.
- Reduce dependence on private automobiles by promoting alternate modes of travel (bus, bicycle, etc.) for both residents and visitors; continue to encourage visitors – especially short-term visitors – to come to the Vineyard without their car.
- Encourage residents and visitors to use public transportation, by continually improving bus and park-and-ride services.
- Improve safety and security for all transportation system users.
- Favor the seamless integration of various transportation systems (physical installations, scheduling, etc.) to increase the efficiency and convenience of alternate modes.
- Ensure that the road network is designed and managed to minimize congestion, pollution, and safety problems, and to preserve scenic roadside views and the character of rural roads.

- Minimize transportation-related pollution, promote energy conservation and sustainability, and support preservation of natural resources.
- Address problems at the Island's most congested locations, emphasizing traffic management over major physical modifications (more roads, wider roads, or inappropriate traffic controls) that would degrade the character of the Island.
- Expand and enhance a safe and efficient network of shared-use paths (SUPs), walking trails, and in-town bicycle and pedestrian accommodations.
- Work with the VTA and others to enhance the transportation options of those with limited mobility (disabled, elderly, young people), and for other disadvantaged populations.
- Integrate infrastructure improvements (particularly harbors and the airport) with economic development strategies.
- Promote cooperation among the Vineyard's various transportation agencies, the public, and private transportation providers.
- Coordinate regional land-use and transportation planning policies, favoring land-use decisions that reinforce the other objectives such as:
- Consolidation of mixed-use, pedestrian-friendly village areas within the limits of already developed areas, where daily needs can be met without a car;
- Outside village areas, development within walking distance of bus stops, and encouragement of general stores to reduce the need for routine trips.

6. Water Transportation

6.1 Description

Most Island residents and visitors travel to and from the Island on scheduled ferries. The dominant carrier of passengers, vehicles and freight is the Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA), which furnishes year-round service. The Patriot Party Boat, operating an approximately 40-passenger boat between Falmouth and Oak Bluffs year round; this boat carries passengers and small daily freight. The third year-round ferry service is the "On-Time" Chappy Ferry, which is the lifeline for the Chappaquiddick area residents in Edgartown.

The Island is also served by several seasonal passenger-only ferry services as well as tugs and barges for freight.

Private vessels and recreational boating also play a part in the Vineyard's transportation system, as well as its culture and history. Every harbor slip seems to be occupied in the summer season.

The Martha's Vineyard Port Infrastructure Capacity Study (MVC, 2000) found that, on a typical sunny day in August 1999, seven main ferry carriers ran approximately 50 ferry trips daily to the Island with a total vessel capacity to transport 28,000 people each way. This study estimated that nearly 12,000 people, 43 percent of capacity, were actually ferried. About 9,400 passengers traveled without a motor vehicle, roughly split between Vineyard Haven and Oak Bluffs; Edgartown received less than 2% of the Island's ferry passengers. The major parts of the Island's water transportation system are described below.

6.2 Woods Hole, Martha's Vineyard and Nantucket Steamship Authority (SSA)

Steamship Authority: Operating with the motto "Lifeline to the Islands," the SSA provides year-round service from Woods Hole to Vineyard Haven and seasonal service from Woods Hole to Oak Bluffs. It is the only ferry that carries both passengers and vehicles between Martha's Vineyard and the mainland. Each one-way trip takes about forty five minutes once on the vessel.

The SSA is a public instrumentality created by the Massachusetts legislature to provide for adequate transportation for Nantucket and Martha's Vineyard. To help protect the economic viability of the lifeline Steamship Authority as it provided non-seasonal low demand service, it was also given the ability and does

regulate private freight operators and vessels certified by the U.S. Coast Guard to carry in excess of forty passengers in their operation between the Massachusetts mainland and the Islands.

The Authority has ferry terminals in Woods Hole and Hyannis on Cape Cod, terminals at Vineyard Haven and Oak Bluffs on Martha's Vineyard, and a terminal on Nantucket. The Authority employs 750 people in peak season, with a budget of over $80 million.

The SSA is governed by a five-member board: A Nantucket resident appointed by the Nantucket County Commissioners, a Martha's Vineyard resident appointed by the Dukes County Commissioners, and one resident each from Falmouth, Barnstable, and New Bedford appointed by the towns. Each of the Island board members has 35% of the members' combined vote; and each of the mainland board members has 10% of the vote. The Authority also has a seven-member advisory board known as the Port Council, whose members are appointed by the towns of Barnstable, Fairhaven, Falmouth, Nantucket, New Bedford, Oak Bluffs, and Tisbury.

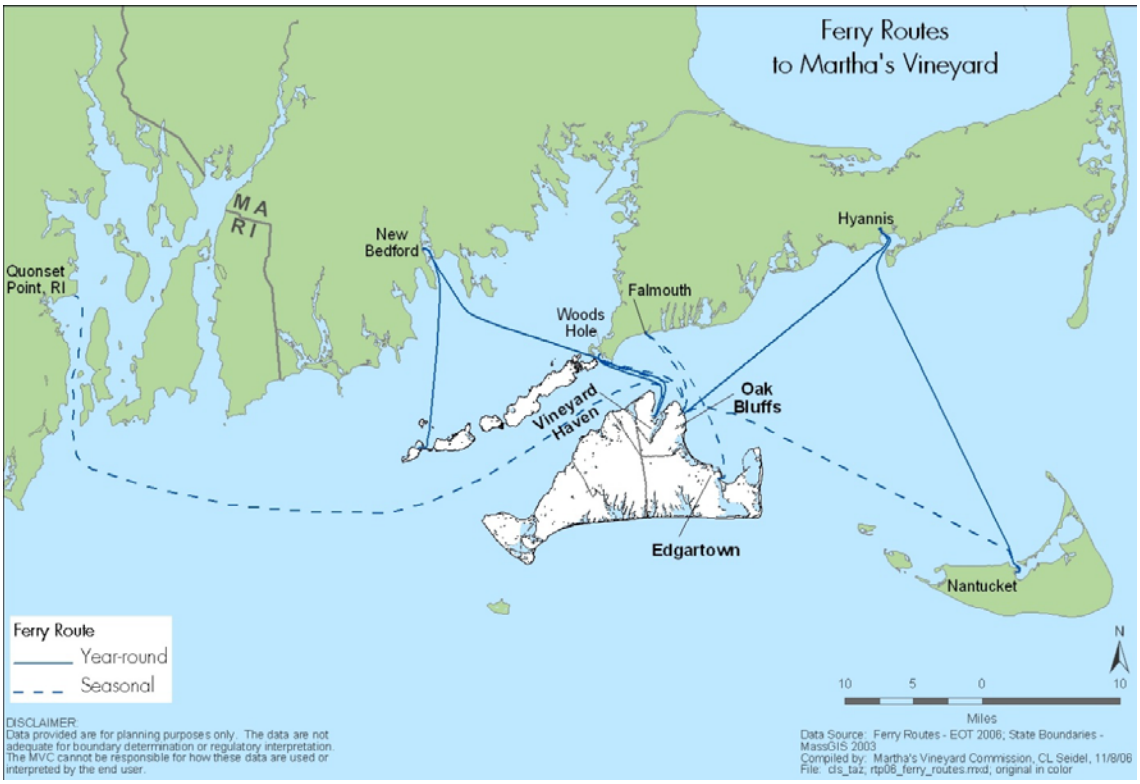
Seven Steamship Authority vessels operate on the Martha's Vineyard routes. The M/V Island Home, the M/V Governor and the M/V Martha's Vineyard serve the Vineyard exclusively. The freight vessel M/V Gay Head normally works the Nantucket route, but occasionally fills in on the Vineyard routes when other vessels are being maintained. Vessel sizes, carrying capacities, and year built or acquired are shown in the table below.

Steamship Authority Vessels serving Martha's Vineyard

Vessel	Passenger Capacity (includes crew)	Vehicle Capacity (car equivalents)	Length	Width	Year built or acquired by SSA
Martha's Vineyard	1,024	54	230′	60′	1993 built
Island Home	1,210	76	255′	64′	2007 acq
Governor	256	42	242′	46′	1954 built
Sankaty	300	39	235′	50′	1981 built
Nantucket	768	50	230′	60′	1974 acq
Katama	150	39	235′	52′	1981 built
Gay Head	147	39	235′	52′	1989 acq

The Authority's newest ferry vessel, the Island Home, entered operation in March 2007, replacing the Islander that had been in service for more than half a century. The faster, larger Island Home improved ferry operations. Reconstruction of the Oak Bluffs ferry terminal was completed in 2010, and involved rebuilding the pier to accommodate some of the staging that had previously occurred on the street, and reorganizing the former staging area to allow for more efficient pick-up and drop-off – all to reduce the impact on through traffic. Trips into the Oak Bluffs terminal are sometimes diverted when the winds are high because it is difficult to dock and connect for vehicle and passenger unloading and loading. The Oak Bluffs terminal is only used seasonally.

The terminal in Vineyard Haven was built in 1995, and is more sheltered further into the Vineyard Haven Harbor. This is the year round terminal connection for SSA ferries, and sometimes the Town of Tisbury is overwhelmed as the year round trips and related traffic seem to grow.



6.3 The Patriot Boat

Officially called "Patriot Party Boats" this is the year round water taxi between Falmouth and Oak Bluffs. There are three boats that serve the Island and connect Oak Bluffs and Falmouth (Patriot Too, Minuteman, Quickwater). These 40-passenger boats are small enough to not require licensing from the Steamship Authority. The service runs eight round trips per day Monday through Friday, largely serving work commuters and delivering newspapers each morning, along with various other freight shipments daily, including auto parts, tires, and building supplies, crates of library books, bread and other food supplies.

The Sharks baseball team is sometimes shuttled on the Patriot Party Boat to games off-island, while the opposing team playing on-island uses the service to arrive and depart.

If you are stuck off-island or on-island after ferry service closes for the evening, the Patriot Party Boats offer a water taxi service for private hire at non-scheduled times.

6.4 On-Time Chappaquiddick Ferry

The Chappy Ferry operates year round from about 6:45 a.m. to 8:00 p.m. weather permitting, with an hour or two in the later evening, and provides the lifeline for Chappaquiddick residents between their island and Edgartown Harbor and beyond. This ferry service has two vessels that carry vehicles; three vehicles are transported at a time over the approximately 450 foot distance from dock to dock. The 3-car

On-Time ferries provide the only vehicular access to the Island of Chappaquiddick (other than sporadic four-wheel drive access along the beach). The service increases in the summer season when the demand swells with visitors and summer residents.

6.5 Seasonal Ferries

- **Bicycle Ferry:** A seasonal bike ferry allows cyclists to travel from the village of Menemsha to Lobsterville Road in Aquinnah.

- **Island Queen:** Island Commuter Corporation operates the Island Queen between Oak Bluffs and Falmouth, with a capacity of 515 passengers. During their operating season of mid-June to mid-September, the Island Queen operates seven daily round trips, with additional sailings on the weekends. Limited service is provided in May and October. (Statistics are not public because Island Commuter Corp. was licensed before this became a requirement.)

- **Hy-Line:** Hy-Line Cruises operates between Hyannis and Oak Bluffs, with a schedule that varies from season to season. In peak season, the 450-passenger M/V Brant Point makes four round trips. In 2005 Hy-Line began operating a year-round fast ferry service aboard the 140-passenger M/V Lady Martha between Oak Bluffs and Hyannis, but it has since been discontinued.

- **SeaStreak Martha's Vineyard:** Formerly New England Fast Ferry, this seasonal fast ferry service operates between Vineyard Haven and New Bedford (and seasonal service to Oak Bluffs) aboard the M/V SeaStreak with a capacity of 150 passengers. This service replaced the Schamonchi, which had been operated seasonally for several years by the Steamship Authority.

- **Martha's Vineyard Fast Ferry:** This seasonal, high-speed service aboard a 400-passenger catamaran between Quonset Point, Rhode Island and Oak Bluffs started in 2003.

- **Pied Piper:** Falmouth - Edgartown Ferry & Charter Service operates this 120-passenger seasonal ferry service between Falmouth and Edgartown.

6.6 Cruise Ships

Cruise Ships: There have been up to 30,000 annual visitors brought to the Vineyard by cruise ships operated by major companies, such as Norwegian and Royal Caribbean. These large vessels anchor off Oak Bluffs and tenders ferry passengers to the Oak Bluffs Harbor. Smaller cruise ships berth at Vineyard Haven Harbor and annual bring up to 1,000 passengers.

6.7 Harbors

The three Down-Island towns have harbors with anchorage or marina facilities for transient recreational boats (Edgartown: 102; Oak Bluffs: 216; Tisbury: 150) in addition to hundreds more marina dockages, harbor moorings and anchorages used by residents. In addition, Menemsha, in the Town of Chilmark, has a smaller harbor with facilities for commercial fishing boats, as well as for recreational boats. A brief description of Vineyard harbors and anchorages fallows.

- Vineyard Haven Harbor – ferry and tug/barge service from mainland, with a breakwater, dockage, and anchorage;
- Oak Bluffs Harbor – ferry service from mainland, pleasure boat dockage and moorings, featuring permanent jetties;
- Edgartown Harbor – ferry from Falmouth, pleasure and fishing boats, ferry to Chappaquiddick;
- Menemsha Harbor and Pond – Fishing and pleasure boat anchorage, dockage, and mooring, with a permanent opening to Sound;
- Tashmoo Pond – pleasure boat anchorage, boat launch, with a small jettied opening without a real channel;
- Lagoon Pond – pleasure boat anchorage, fish hatchery, pond opening with a breakwater jetty;
- West Basin – fishing, pleasure boat anchorage;
- Off-Island ferry harbors at Woods Hole, New Bedford, Falmouth, Hyannis, Lewis Bay, Nantucket, and Quonset Point, RI;
- Island ponds for recreational boating, fishing, and swimming, including Quitsa Pond, Tisbury Great Pond, Oyster Pond, Edgartown Great Pond, Sengekontacket Pond, and Pocha Pond;
- Katama Bay – small ferry, pleasure boating, boat ramp, shell fishing;
- Cape Poge Bay – pleasure boating, swimming, fishing and shell fishing;
- Hart Haven Harbor – private harbor with dockage and anchorage.

Other Vessels: Miscellaneous vessels operating in Vineyard waters include:

- USCG Rescue vessels from Woods Holes and Menemsha,
- Coastal cruise ships docking in Vineyard Haven,
- Small pleasure boats docking and mooring in all of island harbors,
- Large pleasure boats berthing, mooring, anchoring in deeper water,
- Parasailing and personal watercraft rental in Vineyard Haven,
- Harbormaster boats operating safety patrols in the four major Island harbors,
- Bilge pumpout boats in island harbors,
- Small sailboats for recreational, competitive, and instructional sailing,
- Large sailing vessels in vicinity,
- Sport fishing boats chartered from Island ports,
- Commercial fishing boats operating from local ports,
- Shellfishing vessels primarily operating on inland island waters,
- Cruising catamaran Mad Max, a passenger vessel in Edgartown,
- Tugs and towboats for barges and emergency towing,
- Deck barges carrying bulk aggregate and modular homes,
- Fuel barges used to transport petroleum products,
- Dredges (public and private) used for waterway projects.

Recent developments include:

- Oak Bluffs Ferry Terminal – The SSA replaced the aging Oak Bluffs ferry terminal and dock with an improved facility that has upgraded the ability and safety for vehicles, particularly long trucks, to board and disembark, eased the staging of vehicles and traffic flow in the vicinity.
- Vineyard Haven Harbor – A new mooring field has been placed in the inner harbor to take better advantage of the recently opened gut at the beach end of the harbor jetty. The Tisbury

Harbormaster is compiling SSA, barge, and other vessel traffic data in preparation for future dredging of the harbor.

- Lake Tashmoo – Tisbury recently established a new mooring field to take best advantage of the improvements in the dock adjacent to the existing boat ramp.
- Menemsha Harbor – A fire in August 2010 destroyed a large section of the dock owned by the Town of Chilmark, as well as a U.S. Coast Guard boathouse. Reconstruction of the dock is expected to take at least a year.
- Oak Bluffs Harbor – Oak Bluffs recently rebuilt the North Bluff bulkhead to better accommodate the many ferries and tenders that use this portion of the harbor. The improvements included infrastructure integral to pedestrian and vehicular circulation and staging. The town is now building new bulkheads in the vicinity of the East Chop Beach Club to improve the berthing of motor vessels, including a fire and rescue boat that was obtained through a federal emergency management grant.
- Tashmoo Opening – Tisbury is engaged in initial studies and planning for making the opening permanent.
- Katama Bay Opening – A 2007 storm breached the barriers beach separating the south end of Katama Bay from the ocean, leaving a gap of about 2 miles wide between the south shores of Edgartown and Chappaquiddick – making Chappaquiddick a true island The breach substantially altered currents between the bay and Edgartown Harbor, especially in the narrow channel between the two water bodies, which is also where the Chappaquiddick Ferry crosses. The 4-wheel drive vehicles that previously could use this alternative access then shifted to use the Chappaquiddick ferry. In the winter 2014-2015 season, the breach closed and access for Four wheel drive vehicles geared for beach travel may be open again.
- Coastal Salt Ponds – Massachusetts EstuariesStudy of selected island embayments has begun to yield recommendations for improvements in water quality, which will increase their attractiveness for recreational activities.

Summary List of Ferry Services

YEAR ROUND

Steamship Authority www.steamshipauthority.com Vineyard Haven (Tisbury) –Woods Hole (Falmouth)
1 Water Street, Vineyard Haven, MA
1 Sea View Avenue, Oak Bluffs, MA (seasonal terminal)
1 Cowdry Road, Woods Hole, MA
Telephone: 508.477.8600
Woods Hole, MA to Vineyard Haven Year-round, Passengers & Cars; 45 minute one-way trip.

Patriot Party Boats, Inc. www.patriotpartyboats.com/watershuttle.php Falmouth to Oak Bluffs
227 Clinton Ave., Falmouth, MA 02540
Telephone: 508-548-2626
Falmouth to Oak Bluffs, Year-round passengers; approximately 25 minute one-way trip.

Chappaquiddick Ferry – On Time chappyferry.com Edgartown to Chappaquiddick
Dock Street, Edgartown, MA
Telephone: 508.627.9427
Edgartown to Chappaquiddick, Year-round, Passengers & Cars, 3-5 minute one-way trip.

SEASONAL

Bike Ferry (508) 645-5154 bicyclists Menemsha (Chilmark) to Lobsterville Road in Aquinnah.

Hy-Line Cruises www.hylinecruises.com/marthas-vineyard-ferries Hyannis—Oak Bluffs
12 Circuit Avenue Extension, Oak Bluffs, MA
Telephone: 800-492-8082
Hyannis–Oak Bluffs
Traditional & High-Speed Ferry Service; traditional 95 minute one-way trip; High-Speed 55 minute one-way trip

Island Queen Ferry islandqueen.com Falmouth –Oak Bluffs
75 Falmouth Heights Rd, Falmouth, MA
Telephone: 508.548.4800

Falmouth Edgartown Ferry Service Falmouth –Edgartown
278 Scranton Avenue, Falmouth, MA
Telephone: 508.548.9400
Falmouth-Edgartown-Ferry
http://www.falmouthedgartownferry.com/zgrid/themes/10266/intro/index.jsp

Seastreak seastreak.com/newbedschedules.aspx Martha's Vineyard –New Bedford / New York City
1 Seaview Avenue, Oak Bluffs, MA
State Pier, Vineyard Haven & Oak Bluffs, MA
Telephone: 1-800-262-8743
New Bedford, MA – Martha's Vineyard; approximately one hour.
Martha's Vineyard –New York City; approximately 5 hours.

Martha's Vineyard Fast Ferry Martha's Vineyard – Rhode Island
1347 Roger Williams Way, North Kingstown, RI
Telephone: (401) 295-4040
Rhode Island IFastFerry Quonset Point, RI –Oak Bluffs, MV is approx. 1 hour 25 minutes for one-way trip
http://www.vineyardfastferry.com/marthas_vineyard_ferry_schedules.htm

6.8 Trends and Analysis of Issues

Ferry traffic has grown considerably over the past generation, although it has leveled off in the past decade.

Increasing concern about vehicular traffic growth on the Steamship Authority vessels came to a head in the late 1990's. At that time, SSA consultants estimated that "August demand in 2005 will be 22 percent higher than 1995 volumes requiring an additional 700 parking spaces daily and 25-40% more passenger capacity unless constrained in some way by SSA carrying capacity or growth management policies on the Islands". (KJS Associates and FXM Associates, 1996.)

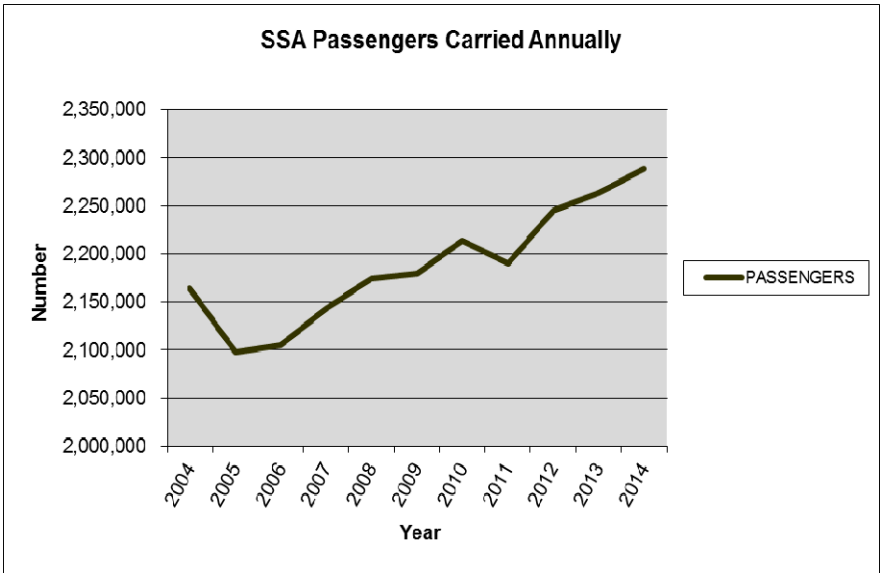
This concern about the growing number of vehicles carried by the ferries led to a 1997 decision to limit summer automobile capacity on ferries which was approved by voters in all island towns. Subsequently, the SSA Board of Governors constrained ferry slots to the Island from June to August.

Passenger Arrivals & Departures by Ferry

Year	SSA	Private Ferries	Total
1960	233,828	N.A.	**233,828**
1965	442,853	N.A.	**442,853**
1970	736,067	N.A.	**736,067**
1975	989,761	N.A.	**989,761**
1980	1,197,852	219,209	**1,417,061**
1985	1,347,467	227,706	**1,575,173**
1990	1,717,238	240,308	**1,957,546**
1995	2,139,599	242,503	**2,382,102**
2000	2,309,181	263,845	**2,573,026**
2005	2,098,037	267,883	**2,365,920**
2010	2,213,800	179,385	**2,393,185**
2011	2,189,530	178,783	**2,189,530**
2012	2,244,441	177,216	**2,244,441**
2013	2,263,708	173,719	**2,263,708**
2014	2,287,999	181,305	**2,287,999**

Excludes the Island Queen and the Rhode Island MV Fast Ferry. Source: SSA

The number of passengers on Steamship Authority boats grew steadily up to a peak of about 2.4 million one-way passenger trips in 2002, then passenger trips bottomed out in 2005 at 2 million, and since has climbed to about 2.29 million trips in 2014.

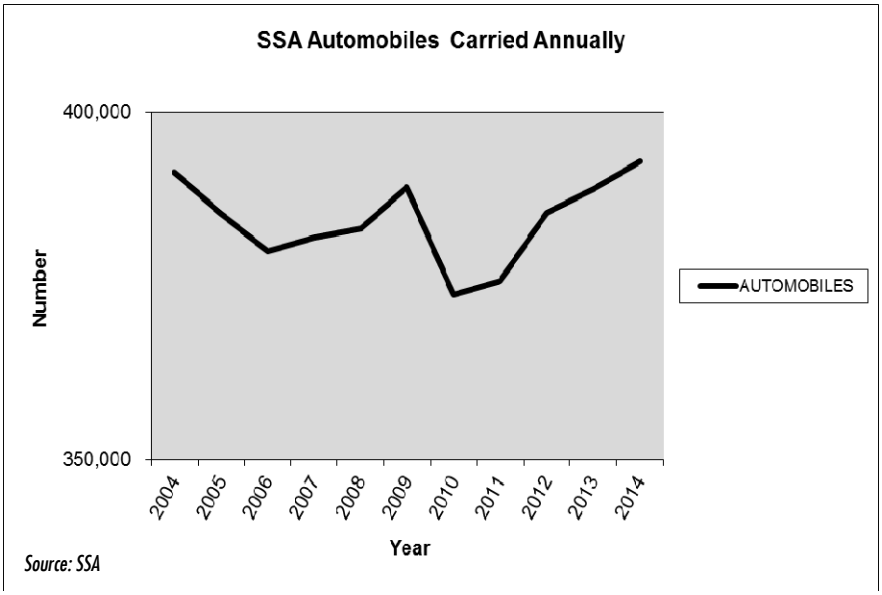


Private ferry passengers were up in 2005 over year 2000; then the table shows a decline. There was a change in the New Bedford ferry from SSA operation to a private enterprise.

The number of vehicles on the SSA

peaked in 2001 at 490,724 trips, and has since dropped to 484,300 trips. In the past five years, the percentage of all vehicles under twenty feet in length comprised of Islanders traveling on reduced-fare excursion rates grew from 39.4% in 2000 to 42.6% in 2005. This percentage peaked at 66.6% in December 2005. Note that until 2004, personal pick-ups under 20' long were classified as cars whereas they were subsequently classified as trucks; this explains part of the decline in the number of cars and the increase in the number of trucks. The number of freight trucks (over 20') has not risen in recent years.

The limit on ferry automobile capacity since 1997 appears to have led to an increase in the number of people that keep one car on the Island and another one on the mainland, so the reduction in on-Island vehicle traffic is perhaps not as great as hoped. The Steamship Authority operates over 4,000 parking spaces on the Upper Cape; 500 in Woods Hole, 2,700 in Falmouth, and 900 in Bourne. The number of permit-holders in the SSA's Falmouth parking lots has doubled in recent years, whereas the number of transients has remained about the same. The number of automobiles registered on the Island has also doubled, although it is not clear exactly how many cars are physically on the Island at a given time. Thus, the limit on ferry automobile capacity might have had a dampening effect on short-term visitors choosing to bring a car across.



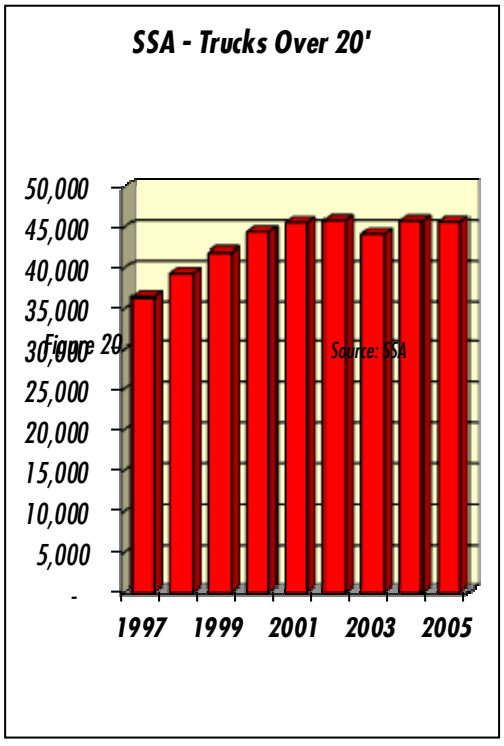
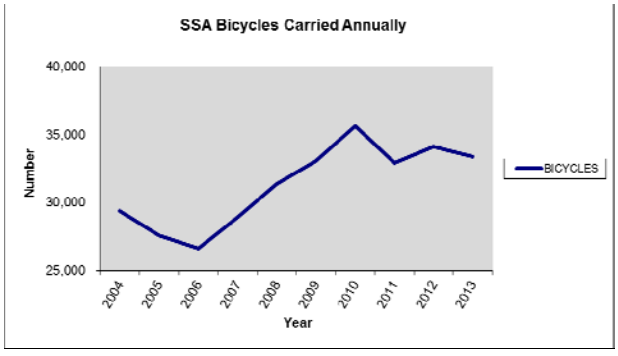


Figure 20

In addition to cars and trucks, the SSA carried 33,394 bicycles in 2013. Of the bicycles carried on the SSA by MV Port, 29.3% were from Woods Hole to Vineyard Haven and 21.3% from Woods Hole to Oak Bluffs. Bicyclists traveling to Woods Hole port from Martha's Vineyard ports were 26.7% out of Vineyard Haven and 22.7% from Oak Bluffs terminal. Looking at monthly bicycles carried on the SSA, 56% of bicycles were carried in July and August 2013, while 44% were during the other ten months of the year.



This does not include bicycles on vehicles, but bicycling passengers. The SSA allows bicycles, but the policy is to load vehicles and passengers, and then bicycles as space allows.

Respondents to the 2003 summer ferry survey indicated that about 10% were permanent Island residents, slightly under 20% were seasonal residents who spend at least one month on the Vineyard, and over 70% were shorter-term visitors.

Length of Stay: Almost one third (31%) of all visitors arriving on the ferries in the summer do not stay overnight but return to the mainland on the same day. One quarter of all visitors spend only one or two nights, and another quarter spend three to six nights. Those staying a week or more account for just under 20% of the ferry passengers.

Seasonality: The SSA reports about 19,000 return automobile trips in January and over 52,000 trips in August (3-year average, 2007 to 2009). Passenger trips averaged 92,577 in January and 357,790 in August.

Traffic on the Cape and in Falmouth: An issue directly related to ferry operations is traffic on Cape Cod. Concern has been expressed, especially by residents of Falmouth, that traffic headed to the ferries, particularly the SSA ferry in Woods Hole, is a major cause of traffic problems in that community. However, studies by the Cape Cod Commission indicate that less than 3% of traffic on the Bourne Bridge is headed to the ferry. Within Falmouth, the main cause of traffic would appear to be the considerable growth that has taken place within Falmouth itself. Even on Woods Hole Road, about 82% of the traffic is local and only 18% is ferry traffic. This road is uncongested (level of service of C or better) virtually all the time, excepting brief periods (averaging 4 to 10 minutes) after a boat discharges vehicles and passengers. Nevertheless, representatives from the Vineyard and Falmouth agreed to work together to limit traffic in Falmouth, especially the transportation of hazardous materials. The subsequent elimination of guaranteed same-day ferry travel without reservations ("guaranteed standby") during peak times has had a significant effect on reducing traffic and congestion in Woods Hole.

Port areas: The 2002 Martha's Vineyard Port Areas Infrastructure Capacity Study, indicated that high levels of congestion – cars immobilized in parking lots, brief and not-so-brief street backups, pedestrians weaving among stopped vehicles – were repeatedly observed with the arrival of most ferries at Island terminals. Typical shortcomings involved the inadequate management of pedestrian movement: narrow or non-existent pedestrian ways, a scarcity of direction signs, and problems with crosswalk design, location, or use. Most terminals had insufficient room for cars picking up or dropping off passengers.

Significantly, the congestion accompanying the dispersal of arriving passengers was of relatively short duration – usually less than 30 minutes for the larger SSA vessels, and less than 15 minutes for the private carriers. After these periods, activity returned to, or was slightly elevated from, background activity levels that existed prior to the ferries' arrival. Some terminals experienced very little activity between ferry arrivals. The fact that groups of a few hundred ferry passengers can disperse into or beyond the background so quickly suggests that capacity may exist to accommodate larger groups, or increase the frequency that the groups are received.

Vineyard Haven is exploring ideas for relieving traffic congestion in the vicinity of the SSA terminal and VTA transit hub.

Suggestions for improving the infrastructure focus on:

- completing pedestrian ways and upgrading their width or condition;
- controlling pedestrian street crossings through a combination of improved or additional crosswalks, physical barriers to direct pedestrians to crosswalks, and education and enforcement efforts;
- improving way-finding signage at the terminals and the village centers; and
- re-evaluating vehicular circulation patterns as they affect terminals.

Improved information regarding the characteristics of ferry passengers may lead to a better understanding of their movements. Some improvements have been made, notably to the area around the Oak Bluffs Steamship Authority Terminal and nearby streets (Lake Avenue project), and though there is congestion as the vessel is unloading and loading, it seems to be fairly efficiently dispersed.

Figure 22: SSA Embarkation Fees – 2010

	Barnstable	Falmouth	Nantucket	Oak Bluffs	Tisbury	Total
Total Passenger Trips	260,008	1,111,873	262,339	252,646	849,281	2,736,147
Total Exempt Trips	61,943	402,375	63,876	41,733	360,823	930,750
Trips subject to Fee	198,065	709,498	198,463	210,913	488,458	1,805,397
Fee	0.50	0.50	0.50	0.50	0.50	
Fees Payable to Town	$99,032	$354,749	$99,231	$105,456	$244,229	$902,698

Note: Barnstable fees are distributed 75% to Town of Barnstable, 25% to Town of Yarmouth.
Source: SSA

Embarkation Fees: The Commonwealth enacted legislation adding a 50-cent fee to passenger trips to and from the Vineyard, to be used to help defray costs incurred by the port towns in dealing with the impacts related to the presence of these ferry services. Commuter, excursion, and student trips are exempted. The funds collected have been remitted to the port towns where they have been used for a variety of purposes such as ensuring police presence to direct traffic around the ferry terminal and at nearby intersections.

Reservations: Increasing use of the Internet makes it easier for customers to make reservations and reduces the need for a separate trip to the ferry terminal or ticket office to pick up tickets. The SSA introduced on-line reservations at the end of 2003 and now, more than a quarter of all reservations are made on the web.

Figure 23: SSA Internet Reservations

	Web	Total	% Web
2007	95,690	317,958	30.1%
2008	101,382	312,021	32.5%
2009	116,385	310,159	37.5%
2010	123,985	315,329	39.3%

Source: SSA

6.9 Objectives

Maintain the summer capacity of vehicular access to the Island at the 1995 levels, based on the results of the 1997 Island-wide referendum on the subject. Continue to encourage visitors to come to the Island without their cars.

Reduce vehicular traffic to the ferry passing through Vineyard Haven and Oak Bluffs in addition to Falmouth, the Cape Cod Canal bridges and on the Cape, particularly cars (and for the Cape side, buses) that are dropping passengers off at the ferry, as well as freight trips.

Improve vehicular and passenger access to and from ferry terminals including better remote parking-ferry connection, drop-off, queuing and better distribution between the two Island ferry terminals.

Reduce vessel delays or cancellations due to mechanical issues as much as possible to ensure reliability and confidence in the system.

Coordinate improved connections with transit at both sides of the ferry trip for passenger convenience. Seek to achieve a seamless experience whereby passengers can check in at mainland SSA parking lots, including leaving their baggage, and be brought from bus, to ferry, to bus and then to a parking/service center on the Vineyard where they would have all transportation opportunities available (bus, taxi, car rental).

6.10 Proposed Projects and Actions

Encourage passenger drop-off and pick up at Park-and-Ride facilities to reduce traffic congestion in town and especially near terminals. Consider setting up remote check-in facilities.

Continue to make improvements to the reservations system and queuing for passenger convenience and to reduce unnecessary traffic.

Review periodically the number of trips delayed or cancelled for mechanical issues to provide a reliability check up on the ferry system.

Coordinate the capacities of the boat lines with the capacities of the region's roads and public surface transportation services.

7. Air Transportation

7.1 Airport, Airfield, and Airstrip

Martha's Vineyard Airport (MVY): This is an FAA-certified non-hub commercial service airport, which provides general aviation, air carrier, and freight service to the Island. Located in the towns of Edgartown and West Tisbury, the airport is near the Island's geographic center. The airport has two runways, an airline passenger terminal, air traffic control tower, aircraft parking areas, fueling facilities and aircraft rescue/firefighting and maintenance facilities. A business park adjacent to the airport offers industrial and commercially zoned lots for non-aviation use.

Runway 6-24 is 5,504 feet long, 100 feet wide, and is equipped with a precision instrument approach. Its high-intensity runway lighting can be pilot controlled. The runway was reconstructed and grooved in 1993. The Airport Reference Code is C-III, which designates the aircraft size and speeds for which the area is designed

Runway 15-33 is 3,297 feet long, 75 feet wide, and is a visual-flight-rules runway with medium intensity runway lighting that can be pilot controlled. The runway was reconstructed in 1992. The Airport Reference Code for this runway is currently B-II.

The Airport Commission is a seven-member body appointed by the Dukes County Commission. adopted the Martha's Vineyard Airport Master Plan Phase II in December 2002, and the associated Environmental Review encompassing 14 projects was completed and approved in 2003. The Airport Reference Code is C-III, which accommodates the aircraft now using the airport that generally have greater wingspans and faster approach speeds. Many of the projects proposed in the Airport Master Plan are designed to support the new aircraft mix that MVY now sees. These projects are to ensure that MVY remains a safe and adequate facility into the future and will be funded through a variety of Federal, State, and Airport resources.

Katama Airfield: This visual flight rules grass strip airfield, is open to recreational aircraft from May to October. Sited in an environmentally sensitive sandplain grassland, any expansion must conform to the Katama Plains Management Agreement, which is administered jointly by the Nature Conservancy and the Town of Edgartown's Conservation and Airfield Commissions. Development must also conform to the regulations enacted by the MVC for the Katama Airport District of Critical Planning Concern.

Trade Winds Airstrip: This airstrip, at Trade Wind Fields Preserve in Oak Bluffs, is owned and maintained by the Martha's Vineyard Land Bank Commission. There are few operations because pilots must receive advance permission.

7.2 Trends and Analysis of Issues

Air travel accounts for about 5% of passenger travel to the Island. The total number of passengers departing by air grew dramatically from 1970 to 2000, coinciding with the period of most rapid development on the Island, and has since settled back to levels similar to those in the mid-1980s.

The number of annual commercial enplanements (one passenger departing on a scheduled airline flight) fluctuated from about 60,000 in the mid-1980s, to under 40,000 in the early 1990s, to 71,953 in 2000, and back down to 36,740 in 2010. This variation results from several factors, primarily changes in commercial service such as addition or deletion of air carriers, reduction of commercial service during the off-season, and revised flight schedules. Although the Master Plan for the Martha's Vineyard Airport anticipated airline enplanements increasing at an average annual rate of 5.5% through 2005, and then slowing to an average annual rate of 2.1% through 2020, enplanements from 2000 to date have decreased.

General Aviation includes all non-airline activity such as military, charter and private aircraft regardless of aircraft size and accounts for over 50% of passenger trips (passenger figures in Figure 24 are estimated based in takeoffs). The General Aviation market segment growth is expected to slightly increase while air carrier traffic is expected to remain stable.

Figure 24: MVY Passengers Departing by Air (By Category) Source: MVY

	General Aviation	Commercial	Total
1970			33,550
1975			45,305
1980			58,540
1985			105,194
1990			119,448
1995	94,087	54,454	148,541
2000	100,125	71,953	172,078
2005	80,670	48,977	129,647
2006	82,104	45,381	127,485
2007	80,745	45,924	126,669
2008	72,766	40,892	113,658
2009	66,865	34,730	101,595
2010	59,087	36,740	95,827
2011	19,136		39,860
2012	20,350		42,008
2013	21,460		46,583

Airline traffic is likely affected by the economy, changes in patterns of leisure activities, fuel costs, and terrorism fears. Many airports experienced a significant decrease in traffic after September 11, 2001; however the Island's popularity has remained strong, and the airport saw air travel drop a minor amount since then, a change more related to changes in commercial service than such fears.

The MVY Airport continues to focus on safety by addressing the needs of the aviation community through the implementation of the projects identified in the Airport Master Plan.

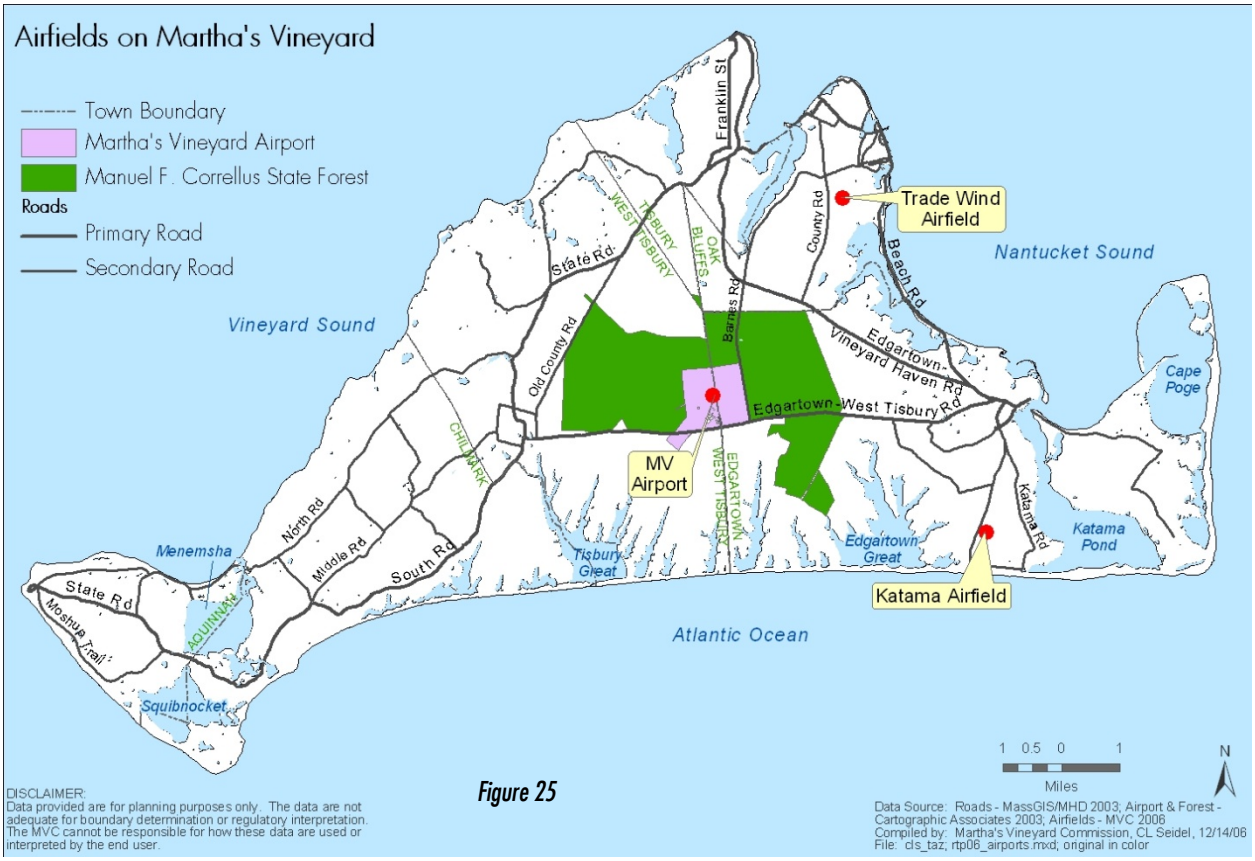


Figure 25

7.3 Objectives

Improve the safety, efficiency, and reliability of the airport facility as a transportation resource for the community.

Improve the airport facilities in response to present needs and growing demand, with a priority on increasing ramp areas and hangars for airplane parking, and on ensuring adequate facilities to accommodate aviation activity.

7.4 Proposed Projects and Actions

Short-Term Projects

- GPS approach to Runway 15/33;
- Construct new ARFF (Aircraft Rescue and Fire Fighting) and SRE (Snow Removal Equipment) facilities;
- Airfield maintenance and snow removal equipment acquisition and replacement;
- Re-construct taxiways and construct additional parking aprons to ensure modern design standards, and continued eligibility for funding;
- Acquire/relocate existing hangars to provide increased apron space adjacent to terminal complex;
- Reconstruct Runway 6/24 to meet Runway Safety Area standards and Taxiway A to meet wing tip clearance standards as required by the Federal Aviation Administration.
- At the Katama Airfield, replace the sole hanger.

Long Term Projects

- Construct General Aviation Terminal facilities, including vehicle parking areas and access roads;
- Construct airline and Connector Roads to reduce vehicle traffic at the intersection of Edgartown - West Tisbury Road and Barnes Road, and complete the inter-airport roadway system associated with the development of the airport business park and the terminal areas;
- Construct infrastructure improvements adequate to meet current and future fire protection needs as relates to water supply and pressure for fire protection systems;
- Air safety improvements;
- Re-construct or add taxiways as appropriate;
- Construct sewage treatment plant improvements;
- Construct access roads, parking areas and utilities;
- Extend secondary runway and install runway safety areas;
- Expand existing airline terminal building.
- Other Actions
- Enhance year round air service to hub airports;
- Identity performance measures to improve the operating performance of air transportation facilities;
- Coordinate the capacities of the air carriers with the capacities of the region's roads and public surface transportation services;
- Monitor operating policies at "hub" airports that affect Island air carriers;
- Monitor the operation of the Martha's Vineyard Airport Terminal.

8. Road Network and Congestion Management

8.1 Description

Martha's Vineyard's road network has remained very similar to the roadways created when the Island population was less than 5,000, and now accommodates the travel demands of about 17,000 year round residents, and about 75,000 people during the peak summer months.

Federal Functional Classification	Description
Arterial	high mobility – low access designed for highest level of vehicular movement at higher speeds with more access control / few curb cuts
Collector	connect between land and high mobility roadways designed for collecting vehicular traffic from local roads to arterials
Local	low mobility – high land access designed primarily for local land use access / curb cuts, with little or no through vehicular movement and slow speeds

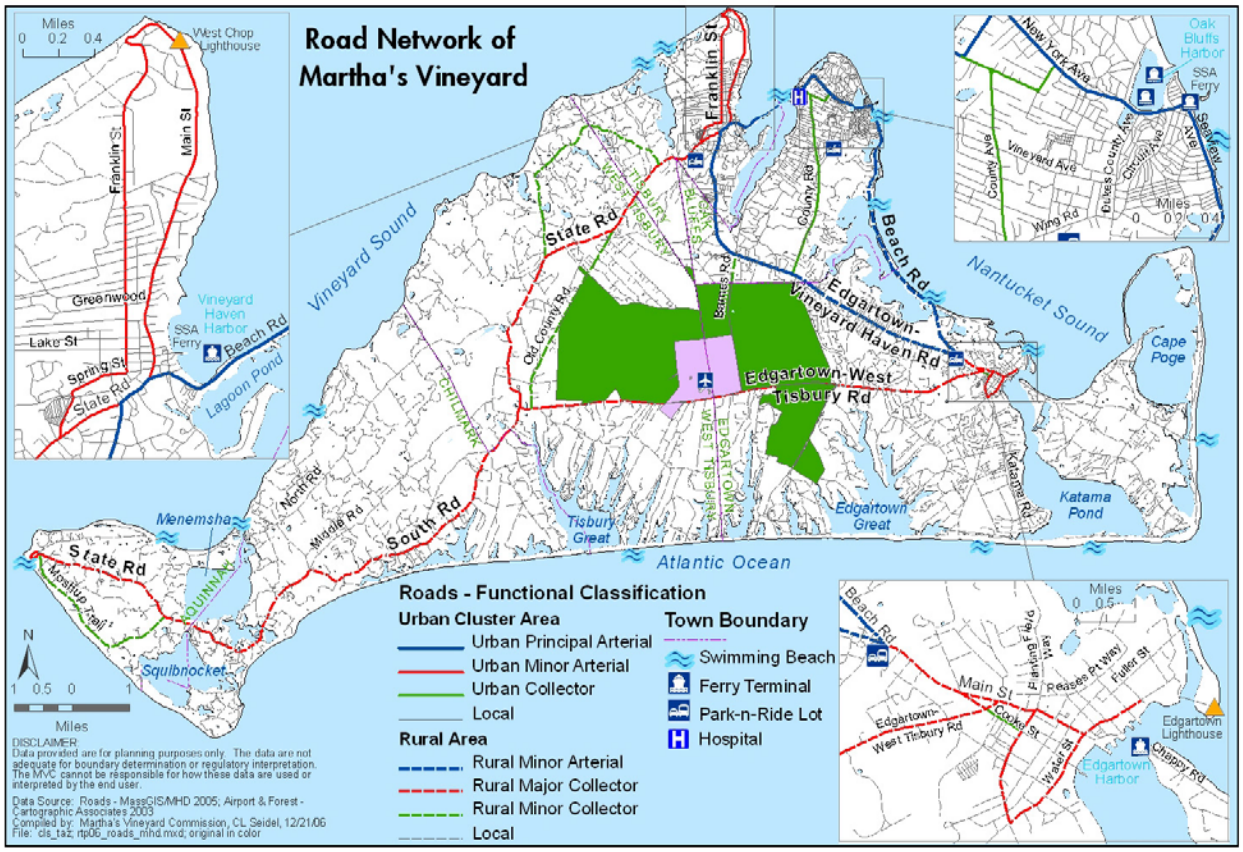
There are 177.4 miles of public, paved roads classified into three basic functional road types with varying widths, lengths and access features on Martha's Vineyard. Ideally in federal guidance for transportation systems there is a hierarchy of roadway function, from the local abutting business or house driveway onto the "Local" road network, to the "Collector" or medium style roadway to connect with other homes and local services, and a collector would also connect one beyond by linking to the "Arterial" network.

The main roadways are functionally classified as arterial roads that loop through the Down-Island towns. Main arterials are, beginning in Tisbury, Beach Road from Five Corners in Tisbury (Vineyard Haven) across the Lagoon Pond Drawbridge to Beach Road into Oak Bluffs, continuing past the hospital onto Temahigan Avenue. On Temahigan Avenue turning the corner and the roadway becomes New York Avenue to the market just before Oak Bluffs Harbor and Sunset Lake, where the roadway becomes Lake Avenue. Arterial links continue with the Oak Bluffs Avenue, a one-way roadway from the SSA terminal and the Oak Bluffs Police Station to where it meets Lake Ave. Lake Avenue turns near Circuit Avenue into a one-way street toward Ocean Park and Sea View Avenue, and then Sea View Avenue links along the beach to Edgartown. The arterial roadways in Edgartown are the Sea View Avenue – Edgartown –Oak Bluffs Road (also called Beach Road) to the triangle intersection and the arterial section turns onto Edgartown-Vineyard Haven Road and back through Oak Bluffs and Tisbury to State Road. State Road in Tisbury finishes the loop back to Five Corners. These roadways do have more local access then most arterials and carry higher volumes of traffic at varying posted speed limits and travel speeds, from 20 miles per hour to 45 miles per hour.

On the map entitled "Road Network of Martha's Vineyard", these main arterials are shown in blue.

The ferry routes from Woods Hole to Vineyard Haven and from Hyannis to Oak Bluffs are classified as regional arterials making them eligible for federal and state transportation funding.

Major and minor collector (or secondary) roads constitute routes between towns and to shops, schools, parks and beaches on which travel distances and speeds are, relative to arterials, shorter and slower. These are red for major collector and green for minor collector, on the "Road Network of Martha's Vineyard" map.



The remaining roads, which provide access to homes and places of businesses, are referred to as local roads. The paved roads are never more than two lanes wide, limiting capacity to about 1,200 vehicles per hour in each direction.

Trends and Analysis of Issues

For most of the year, the regional transportation network performs satisfactorily, and if there is congestion in the morning on State Road heading into Vineyard Haven it is slow going but usually moving so that in a few minutes one reaches their destination. However, during July and August, and increasingly during the "shoulder" season months of June and September, congested locations are more evident, and there is a tendency for people to look for alternate times and routes to avoid delays. Congestion remains an issue in the summer season at times at Five Corners, State Road intersection with Edgartown-Vineyard Haven Road and Look Street in Tisbury, the Steamship Authority Terminals in both Vineyard Haven and Oak Bluffs, the "Triangle" and Upper Main Street in Edgartown. These locations have had safety reviews and further study is needed to develop potential improvement concepts. Crash experience appears to be irregular in

documentation due to the fluctuations in annual crashes, and is reviewed through the MassDOT online system to check for high crash locations. Newspapers on the Island also report severe or fatal crashes.

Vehicles on the Island

For year-round households, there were about 11,630 vehicles or 1.82 vehicles per household in 2000, up from 1.66 vehicles in1990 (US Census); the current rate is typical of other communities in the United States with similar population densities.

Vehicle availability is influenced by: population size, household size, workers per household, household incomes, land use patterns, age and gender of heads of households and lifestyles.

A total of about 28,000 vehicles are registered on the Vineyard (including trailers, Registry of Motor Vehicles), with many belonging to seasonal residents, although it is not clear how many are physically on the Island at any given point in time. Some might be registered here but kept elsewhere most of the time. Nor is it clear how many vehicles are registered off-Island but are kept on the Island. SSA figures indicate that an additional 10,000 vehicles are on-Island in the summer.

According to the 2004 MVC survey, the number of vehicles available to the average seasonal household is slightly lower than for year-round residents. Of these seasonal households, about one half leave one or more vehicles on the Island all year.

Respondents to the 2003 ferry survey indicated that about only one half of the seasonal residents brought vehicles with them, which is consistent with the availability of vehicles to these part-time residents. The same survey showed that about three quarters of visitors staying a week or more brought their vehicles on the ferry. Of the visitors staying three to six nights, fewer than one third brought vehicles, and of those staying only or two nights, only five to ten percent had their vehicles with them.

This reflects the fact that short-term visitors, particularly those staying in town centers (hotels, inns, bed & breakfasts) are the easiest to accommodate without having a vehicle on the Island since they have ready access to most visitor destinations on foot, or by taxi, bicycle, or bus. Also, they are most impacted by the inconvenience of bringing a car on the ferry for only a few days, especially the difficulty of getting a car reservation that fits their travel plans and the relatively high cost of a ferry ticket for a vehicle ($137 round-trip for peak-season 2015 for a car less than 17 feet long, and $157 round trip for vehicles from 17-20 feet long) which may not be justified for a short-term stay.

There are approximately 300 rental mopeds and 400 to 500 rental cars available during the summer season from business located in the Down-Island towns and at the airport.

Increase in Traffic

Traffic counts conducted by the MVC indicate that although there has been a generally steady increase in traffic across the Island, roads and intersections already close to or at capacity have experienced fairly level traffic use.

The peak-season traffic levels have held relatively steady since the late 1990's. However, mid-winter traffic has steadily increased each year. The winter trend reflects the increase in second- homeowners traveling to the Island year-round, and an increase in the number of Island residents, including those who commute to work or school on the mainland. The leveling of mid-summer traffic is the direct result of deliberate ferry-capacity constraints approved by the residents of Martha's Vineyard and imposed by the Steamship Authority management.

Previously, the Commission analyzed traffic volume trends at several Down-Island locations. From 1981 to 1996, traffic volumes increased 1.7% annually. The study locations were: Main Street in Edgartown; Edgartown/Vineyard Haven Road in Edgartown, Oak Bluffs, and Tisbury; New York Avenue in Oak Bluffs; and Beach Road in Edgartown, Oak Bluffs and Tisbury.

While traffic volumes have trended upward since 1996 on most Island roads, Up-Island traffic volumes have generally outpaced traffic growth in Edgartown, Oak Bluffs, and Tisbury. For example August weekend travel remains fairly level in recent years on New York Avenue in Oak Bluffs. The MVC is counting sample bicycle and pedestrian numbers at various locations and on the Shared Use Paths (SUPs); however, usage varies on the SUPs. But traffic volumes Up-island and on local collector roads, such as Meshacket Road in Edgartown.

As might be expected, traffic volumes peak in July and August, and are heavily influenced on-Island by weather conditions and time of day. They are at their lowest during February. As analyzed by the Martha's Vineyard Commission, July and August traffic volumes are typically three times greater than in February.

Drivers on Vineyard Roads

	at Vineyard Haven1		at Edgartown2	
	Weekday	Saturday	Weekday	Saturday
Permanent residents	68%	59%	53%	39%
Seasonal residents and long-term visitors	30%	38%	43%	55%
Short-term visitors	2%	3%	4%	6%

Long-term visitors defined as staying one week or more
1- Source: Origin-Destination study carried out by the MVC in 2004 at the intersection of State Road and Edgartown/Vineyard Haven Road
2 -Source: Origin-Destination study carried out by the MVC in 2005 at five locations in Edgartown

Historically, summer traffic volumes have been nearly twice shoulder season volumes, though the trend is subsiding as the number of non-resident property owners increases.

Traffic counts on some of the most heavily traveled major roads are the State/Beach Road corridor in Vineyard Haven and Upper Main Street in Edgartown, where daily volumes previously were near to 20,000 vehicles in the summer have actually dropped to 12,000 – 15,000 for summer Average Daily Traffic (ADT). The SUP on Upper Main Street was counted with Automatic Traffic Recording equipment in August 2014, and the ADT is 793 bicycles, with a peak hour volume at 1:00 p.m. of 129 bicycles. On Edgartown-Vineyard Haven Road where traffic volumes have also been traditionally high, August 2014 ADT is 12,381, and the SUP ADT was 385 bicycles in September 2013.

Although Vineyarders like to blame traffic congestion on short-term visitors, previous summer traffic surveys at busy Down-Island locations indicate that the majority of the travelers are permanent residents, seasonal residents and long-term visitors, who account for 96% to 98% of summer weekday traffic. Short-term visitors make up only a very small part of the total traffic.

8.2 Martha's Vineyard Context Solutions in the Transportation System

Although each project is typically unique with its specific local traffic experience, environment, land use, context, and related issues, there is a need to implement improvements carefully to maintain the character of the place that residents and visitors recognize, appreciate, and support. The Scenic Roads section includes more discussion on this topic as being discussed by the Island Roads Committee, and the Bicycle-Pedestrian Advisory Committee (BPAC) is working to advance a Complete Streets perspective for island infrastructure. This section is not a discussion of either of those efforts, but rather a place where MVC is including unique strategies that are working and supported on the island, and are preferred treatments to continue where feasible.

Some of these MV solutions are:

- Moving the paint / fog line– narrowing the lane to allow more room for bicyclists and pedestrians
- Allowing narrower shoulders where a Shared Use Path is adjacent to a corridor
- Providing sharrows where desired to remind motorists that bicyclists are traveling on the roadway, too
- Maintaining slower speed limits and speeds on the island for improved safety
- Using barriers that fit in with the character of the location

8.3 Congestion Management

During the summer, there are several intersections and roads that have been highly congested for a long time and feature longer delays of up to 20 minutes at certain times. Although the delays are presently less problematic off-season, traffic growth in the shoulder season threatens to negatively impact mobility in the off-season, too.

An increase in traffic in already busy areas is sometimes enough at times to cause longer delays than are typically expected. For example, a relatively small increase in traffic at an intersection that is close to capacity could lead to a large increase in delays. To avoid this, many drivers would take other routes if available, avoid driving during peak hours, or some visitors might simply stop coming to the Vineyard because of the unpleasantness of traffic problems.

Although some congestion-related delays are merely an inconvenience, congestion can be especially problematic for unavoidable trips, such as cars and trucks taking the ferry, where there is no real alternative and unplanned delay can mean missing the boat.

As traffic volumes on main roads approach their design limits at peak hour, more and more traffic is being channeled onto local roads in order to avoid congested intersections.

Public Opinion for Road System Expansion			
To what extent do you agree or disagree to the following statement – Martha's Vineyard road system should be expanded to handle increased traffic?"			
	Disagree	Neutral	Agree
Permanent residents	68%	17%	15%
Seasonal residents	42%	34%	24%
Visitors	32%	45%	23%
Survey conducted in 2004			

The fact that certain roads and intersections are congested for several months of the year does not mean that there should be physical changes. The previous opinion surveys indicate that people are generally against such expansion. The challenge is how to deal with increases in population and traffic with a historic road network, and keep congestion within bearable levels. In cases where expanding a road's capacity would result in a significant detriment to the surrounding environment, the decision should be against the expansion. There needs to be a balance between the unique experience and environment of Martha's Vineyard and the travel demands. With continued community desire to keep the infrastructure similar there is a need for increased tolerance in travel delays and more real-time information to be able to choose to avoid the congested locations at peak times, a change to transit or other alternate mode in the busiest times, and careful consideration in zoning toward a viable yet comfortably walkable, bikeable, and transit-friendly area.

Alternatives to road improvements that should be considered where roads are chronically at or over capacity include:

- increase alternate mode use, e.g., the use of bus, taxi, bicycle and foot; if one commutes one out of five days per week via an alternate mode it is a 20% home to work trip reduction
- limitations on use, such as restricting oversize vehicle traffic or restricting vehicle traffic in certain areas;

- converting some two-way roads into one-way roadways for an improved circulation system, where feasible;
- land use, zoning, and site design aspects that facilitate walking, biking, and transit use
- traffic management techniques, such as providing information on congestion so that others may avoid getting into the queue, if possible.

8.4 Parking

Since so much of the Vineyard is rural or semi-rural, a large number of people choose to travel by car or truck for at least part of their trip. This makes the availability of parking, either near the destination, or outside of town and linked to town with an efficient transit system, of primary importance.

There is more difficulty in finding parking in town centers during the summer season. Physical constraints related to existing buildings or natural conservation areas make it difficult to add parking areas, particularly in town so the need to provide parking outside of town – either on the outskirts or in more rural areas – with an efficient shuttle into towns will become increasingly important. Parking shortages in the town centers was an issue highlighted by the Island Plan transportation workgroup.

There are two Park-and-Ride lots on the Vineyard, primarily intended to serve employees (freeing up in-town spaces for shoppers), ferry passengers, and visitors (see figure 26). The Vineyard Transit Authority links these lots to town centers.

The Tisbury lot has a capacity of 420, is free for parking up to seven days, and has a charge for longer-term parking. An agreement between the Town of Tisbury, the VTA, and the Steamship Authority set up a free, year-round shuttle service from the Park-and-Ride to the ferry terminal with at least two trips an hour based on the SSA boat schedule. Use of the Tisbury lot has increased significantly in the past two years, since the free shuttle and the free short-term parking were instituted. The SSA leased a property at the airport for possible use in the longer term as an off-site parking/service center.

The Edgartown lot has a capacity of 150 and is free of charge. Only a short walk to downtown, it is serviced by shuttle bus five months a year. This lot uses less than half its capacity in the shoulder months, but operates three-quarters to full in July and August.

Many residents and visitors are unaware of the existence of Park-and-Ride lots, or are unclear how they operate. There have been concerns about how user-friendly they are and about vandalism. It should be noted that the some Towns have relaxed enforcement of in-town parking regulations in the shoulder seasons, which promotes parking in the town centers. The Joint Transportation Committee and the towns have worked to promote awareness and use of the Park-and-Ride lots and to create new ones. A small Park-and-Ride at the Oak Bluffs public works yard was operated on a trial basis in 2005, and Oak Bluffs is exploring potential land for another trial. The JTC also supports seasonal parking at the Oak Bluffs School and at the Edgartown School.

8.5 Pavement Management

Most of the 177.8 miles of paved, public roads on Martha's Vineyard are municipally owned and maintained. Many of the main and most traveled roads on the island are the roads functionally classified as arterial roads, and many are owned, improved, and maintained by MassDOT. There are 102.8 lane-miles, approximately 51.4 miles, of federal-aid-eligible roads on Martha's Vineyard.

The purpose of a Pavement Management System is to keep the roadway system in the best possible condition with the most efficient use of available funds. The aim is to manage pavement condition with preventative or rehabilitation measures rather than wait until a road is in need of reconstruction at a significant cost. Perfect conditions would of course be that all roads are in excellent condition; however, the cost of keeping everything in excellent condition, even for federal-aid-eligible roads, far exceeds available resources.

The conditions of the federal aid eligible roadways were reviewed via a sample of visual checks by the Martha's Vineyard Commission, and the island is fortunate to have roads overall in good to excellent condition. Admittedly, some of the visual condition checks were prior to the severe winter weather, and it should be noted that updates are continually necessary and ongoing. The main travelling road surfaces generally show few signs of deterioration and ride quality is good, though ongoing maintenance is needed to keep them in this condition. More problematic is often the edge of roadway or shoulders, especially where vehicles pull off to park, whose deterioration can pose special challenges for the cyclists travelling in this part of the roadway.

The pavement condition summary does not yet include the municipal roads, though it should be noted that the Towns overall seem to have fairly good road conditions on the main roads. There are still many gravel or dirt roads on Martha's Vineyard in addition to the paved surfaces.

There were also site visits and observations on the Shared Use Path (SUP) pavement conditions, and although the mileage is not included in the Pavement Management summary of conditions and proposed improvements, these SUPs are proposed for inclusion in future pavement management updates. With recent SUP ADT counts in 2013 and 2014 at 793, 900, and 1,108, it is imperative to maintain quality conditions for bicyclists. Another comment was recently received (June 16, 2015) from a family bicyclist who rode twenty miles this past weekend with his son, and reported that the State Forest Bicycle Paths are in rough shape especially near the Disc Golf Course area.

Based on previous Regional Transportation Plan cost estimates, provided by the Old Colony Planning Council, improving a Good road to Excellent requires $40,400 per mile; improving from Fair to Excellent requires $405,146 per mile; and improving from Poor to Excellent requires $697,980 per mile. We use rounded figures of $40,000, $400,000, and $700,000 respectively, for the last RTP, and this MVTP used the same estimates except for taking the poor to excellent condition; this cost estimate was increased to $1,000,000 per mile based on recent project cost estimates.

Based on these figures, the total cost of bringing the pavement of all roads up to Excellent condition would exceed $12,792,000 which is more than the projected available funding of $5,000,000. Although it clearly is more costly per mile, the highest priority is dealing with the roads that are in Fair or Poor

condition. The following table indicates the estimated costs based on the available funds for pavement improvements over the next 25 years.

Pavement Management Summary of Conditions and Improvements

	Current Conditions		Improvements						
		Miles (est.)		All Roads	Available Funds	Recommended Approach			
	% by condition		per mile			miles	total cost	resulting miles	resulting %
Excellent	4%	2.2						2.2	4%
Good	49%	25.3	$40,000	$1,012,000			$0	33.3	65%
Fair	39%	20.2	$400,000	$8,080,000		5	$1,500,000	14.9	29%
Poor	7%	3.7	$1,000,000	$3,700,000		3	$3,000,000	1	2%
		51.4		$12,792,000	$5,000,000		$5,000,000	51.4	

Overall, the pavement management strategy for the region will be developed in a financially constrained way that takes into account the projected revenues that will be available to the region.

The pavement conditions on island will be be updated in each long range transportation plan based on data collection by the MVC and/or town departments of public works.

The MVC will also discuss SUP conditions with the Towns and JTC in order to maintain the off-road alternative mode option.

8.6 Objectives

Improve road safety and congestion with improvements to the quality of the infrastructure, traffic calming, new or improved sidewalks and signage, and potential additional measures. Make areas with safety issues priority locations.

Ensure the maintenance of the road network while preserving the character of rural roads by maintaining and repairing them while respecting their existing "footprints" and designs. To maintain the Island's historic character, avoid street widening, new turning lanes, or traffic lights. Put in place a process whereby a thoughtful commitment to rural road design creates the opportunity for the roads to become a resource themselves, rather than being generally considered an adverse impact on the Island's scenic resources.

Explore opportunities for improving Shared Use Paths' (SUPs) conditions to allow for continued encouragement of mode shift

Work to provide improved information for knowledge of bottlenecks in real time to prevent a portion of additional vehicles entering the queue.

Consider additional park-and-ride programs, pedestrian zones, new loop roads and rerouting of traffic as means to improve the flow of traffic.

Reduce vehicular traffic to the ferry passing through Vineyard Haven, Oak Bluffs and Falmouth by eliminating non-essential trips, such as cars dropping passengers off at the ferry. Offer alternate ferry departure points on the mainland.

Adopt traffic management strategies in regionally significant corridors.

Explore methods to limit summer auto traffic so as not to exceed the capacity of the Island's roads and parking.

Support programs promoting energy conservation that discourage car use by using alternative means of transportation and that encourage use of energy-efficiency cars and buses. This will help achieve air quality objectives and reduce traffic congestion.

Consider Stormwater measures in proposed transportation projects that will enhance the environment and better mitigate flooding in areas that are prone to flooding.

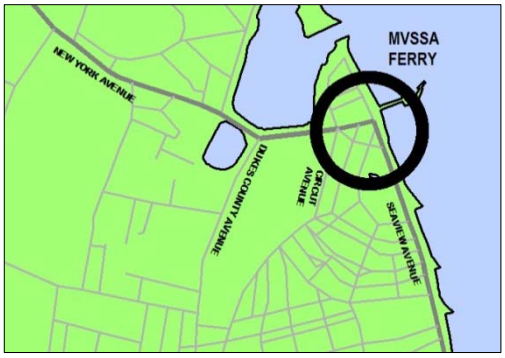
8.7 Key Locations – Planning and Projects

This section provides two recent examples of safety and operational improvements on issue areas reported in the previous long range transportation plan, and includes seven intersection and corridor locations where safety and/or congestion are issues. The Island Plan identified improvements at most of these intersections as a primary objective.

Recent Safety and Operational Improvements

Oak Bluffs

Downtown Oak Bluffs: The vicinity of ferry terminals, the Oak Bluffs Harbor and Circuit Avenue features an urban principal arterial snaking through one of the most popular and busiest areas of the Vineyard. Dense concentrations of commercial activity, one of the Island's largest public beaches, three ferry terminals, a popular park, and high volumes of pedestrian and bicycle traffic result in congestion. In the past few years, several successful improvements have increased safety, as well as aesthetics, in the area.



In 2009 the Steamship Authority made improvements to the area around the SSA ferry dock, including moving some of the staging, presently adjacent to the street, to an enlarged dock. The former staging area was reorganized in order to reduce the impact of ferry operations on traffic in the area.

Nearby, the Town of Oak Bluffs completed a major redesign of the Lake Avenue area that improved pedestrian facilities with the installation of bump outs to calm traffic and improved lane markings in this area. This area has one of the highest concentrations of pedestrians on the Island, but formerly sidewalks were either extremely narrow or missing altogether in this gateway area connecting multiple ferries with downtown and Circuit Avenue. The town also slightly redesigned the North Bluffs Harbor Area in 2008 to make it work more efficiently and to improve pedestrian accommodation.

Roundabout (former Blinker Intersection), Oak Bluffs: The intersection of Barnes Rd. (a rural minor collector) and Edgartown-Vineyard Haven Rd. (an urban principal arterial) previously had a four-way stop (blinking red light) and summertime delays of up to twenty minutes.

This intersection had a relatively high number of crashes as well as long delays on Barnes Road when it was a two-way stop. After it was converted to a four-way stop in 2003, the accident rate declined although during the summer, the back-ups on the Edgartown-Vineyard Haven Road average eight minutes, and are considerably longer at some times of the day.

A 2006 study by the MVC, based in part on a 2001 study by MS Transportation, analyzed five options including the four-way stop with or without a turning lane, a traffic signal with and without turning lanes, and a roundabout. The options were evaluated according to a series of criteria including safety, congestion, and air pollution. The roundabout was deemed the most effective solution, and in 2006 the JTC recommended construction of the roundabout. In September 2006, the Board of Selectmen decided to build a roundabout. Construction was essentially completed on the roundabout in the spring of 2013 for

the summer season, and following Labor Day, the final paving and landscaping were completed in the fall 2013.

Proposed Locations for Improvements

Intersections and Corridors Proposed for Improvements		
1	Five Corners (including the vicinity of the Vineyard Haven ferry terminal)	Tisbury
2	State Road at Edgartown-Vineyard Haven Road and Look Street Intersection	Tisbury
3	Upper State Road Corridor	Tisbury
4	High School area of Edgartown-Vineyard Haven Road	Oak Bluffs
5	Edgartown-Vineyard Haven Road at County Road	Oak Bluffs
6	Upper Main Street	Edgartown
7	The Triangle (intersection of Beach and Edgartown-Vineyard Haven Roads)	Edgartown

1. **Five Corners, Tisbury:** This intersection features three local roads (Water St., Beach St. Ext., and Lagoon Pond Rd.) converging on an urban principal arterial road (Beach Street/State Road – Beach Road). The Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority (SSA) ferry terminal on Water St., Vineyard Haven, generates traffic throughout the day. Much commercial, municipal, and pedestrian activity in the immediate area contributes to summertime delays of ten minutes or more. The VTA bus hub is also at the end of Water Street near the Union Street parking lot for downtown transit customer convenience. The VTA buses try to keep on schedule while SSA and downtown traffic all typically converge to exit via Water Street and the Five Corners intersection.

Previously (2005) the Tisbury Town Administrator and representatives of the Planning Board, Police and Fire Departments, Steamship Authority, and Martha's Vineyard Commission worked to formulate recommended improvements to Five Corners.
Improvements that are completed or underway include:

- Having police officers direct traffic at key locations during peak summer periods;
- Improving the ferry vehicle staging area, including improved signage, moving the check-in booth farther back from Water Street, and improving the short-term parking layout so back-ups do not extend into the street;
- Reorganizing the Water Street Parking Lot so that cars can circulate without having to go back onto the street.

In December 2014, MassDOT and consultants, Members from the Town Selectmen, Planning Board, Police, Fire and the Town Administrator, SSA, and MVC staff met for a Road Safety Audit at two locations, including Five Corners. A draft report was then circulated, and a final Road Safety Report developed in March 2015. Potential interim safety improvement concepts are in discussion.
Other proposed improvements may include:

- Changing the direction of Union Street to allow local traffic and VTA buses (but not vehicles disembarking the ferry) to leave the area without passing through Five Corners. It is thought that the vehicles exiting the SSA would still be directed by the Police Officer.
- Interim simple safety improvements
- longer term safety improvements

2. State Road, Edgartown-Vineyard Haven Road, and Look Street Intersection, Tisbury: An urban principal arterial (Edgartown-Vineyard Haven Rd.) ends at State Road, the junction continues as an urban principal arterial to Five Corners intersection, but is an urban minor arterial uphill toward Upper State Road. With the cross island and intermediated connections to Edgartown-Vineyard Haven Road and the Vineyard Haven downtown attractions like restaurants, shopping, movies, recreation, and the ferry terminal, it is a well-used arterial connection. The State Road corridor is equally important as a connection to the same Vineyard Haven downtown destinations and carries traffic from the three Up-Island towns. With these two well-used roadways both converging at this point, the State Road, Edgartown-Vineyard Haven Road, and Look Street Intersection, there are delays to be expected. As State Road is the primary route through the intersection, the other movements do typically experience more delay. The left-hand turn from Edgartown-Vineyard Haven Rd. is particularly problematic, and is an increasing safety concern.

One proposal for relief at the intersection was the Tisbury Connector Roads, studied and brought to solid concepts of how these roadways would connect between Edgartown-Vineyard Haven Road and Upper State Road. Plans were completed and the Town brought the project to Town Meeting. Though the Tisbury connector road system had a majority vote at the 2013 Town Meeting, it did not pass by two-thirds margin required to move forward at that time.

A study carried out by the MVC for the Town indicated that, provided all three planned links to State Road are constructed, it would offer the following advantages.

- Relieve traffic along the Upper State Road corridor and at the Look Street intersection by allowing much of the traffic between the Edgartown-Vineyard Haven Road and the congested Upper State Road commercial area, as well as traffic heading Up-Island, to bypass the intersection and part or all of the busy portion of Upper State Road.
- Provide better access to the Park-and-Ride and the shuttle to the ferry.
- Provide easier access to the properties south of Upper Main Street as part of a proposal by the Tisbury Planning Board for extensive "smart growth" infill development.

- The possibility of making Look Street one-way exiting the intersection should also be analyzed.

A Road Safety Audit (RSA) meeting, with the same participants as Five Corner RSA, was performed in December 2014 and a final report developed in March 2015. Potential simple and long term improvements from this RSA report are under discussion.

3. Upper State Road, Tisbury: A commercial corridor along an urban minor arterial/rural major collector, this area frequently experiences congestion related to the many access points.

In the 1990's, the State Road Corridor Committee commissioned a study by MS Transportation that, among other things, recommended limiting curb cuts and suggested the possibility of local commercial roads on both sides of State Road and parallel to it, which would better handle the local commercial traffic and relieve congestion on State Road itself. Some projects in the area that were reviewed by the Martha's Vineyard Commission as Developments of Regional Impact have been conditioned to include easements to all for the future construction of such roads.

Another measure to limit growth in congestion on State Road is to limit new high traffic-generating uses in the area. The MVC has been doing this in recent years in this area through the DRI process.

Further study on improvement options for the corridor, including for pedestrians and bicycle accommodation should be accomplished in the future.

4. Edgartown-Vineyard Haven Road in the Vicinity of the High School and YMCA: Traffic calming solution concepts along with a presentation were developed by Northeastern Engineering Professor and his students for this section of Edgartown-Vineyard Haven Road. These concepts for traffic calming should be brought for further discussion as a potential improvement in the Town of Oak Bluffs.

5. Edgartown-Vineyard Haven Road at County Road: This intersection is on the high crash locations list, and a RSA review of potential adjustments to the intersection should be performed in the future to develop recommendations and concepts for improvements.

6. Upper Main Street, Edgartown: This commercial corridor with many access points is also a rural major collector. Two other rural major collectors (Edgartown-West Tisbury Rd. and Cooke St.) also converge on this corridor, resulting in high levels of summer congestion.

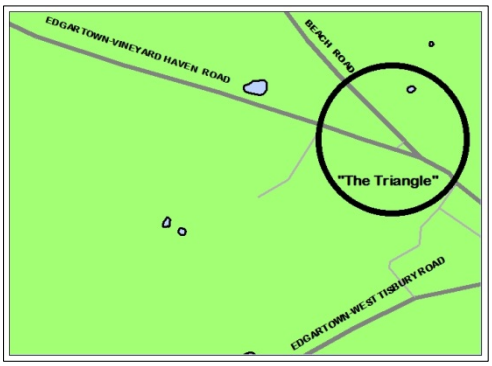
In 2007, the Town of Edgartown asked the MVC to commission Fay, Spofford, and Thorndike (FST) to study the Triangle/Upper Main Street area, using traffic data collected by the MVC in an origin-destination study on the surrounding roads. The Assessment of Permanent and Season Traffic Management Actions assesses several physical and operational improvements, but makes no recommendations, and to date the Town has not seriously considered implementation of any of the studied options, due to the many drawbacks cited in the report.

A previous study, The Edgartown Transit/Traffic/Parking Study and the Upper Main Street Traffic Study, was also conducted by FST in 1990 with a view to improving access to and the flow of traffic on the business areas congested roads. The following recommendations were made: maximize safety; promote public transportation and adapt to the seasonal nature of traffic problems; support VTA and SSA efforts to develop a better coordinated Island-wide public transportation services; obtain a right-of-way and construct a roadway at the end of the Triangle, and develop a park-and-ride lot for use by riders of the Edgartown shuttle. These measures have been implemented, but the area remains congested.

The Town of Edgartown has improved the park-and-ride lot in the area, including paving and expanding the parking area, improving drainage, increasing lighting. Possible future improvements include adding a waiting room and public restrooms.

A Road Safety Audit, with MassDOT and consultant, Town Members of the Planning Board, Fire and Highway Departments, State Police, and MVC, was conducted on Upper Main Street, and a report developed in August 2012. Of particular concern is the pedestrian safety in the area, and the congestion with turning vehicles. One proposed improvement supported by the Town is to implement a median turning lane, perhaps with a landscaped segment for pedestrian refuge. Further discussion of potential adjustments and concepts for the corridor should be performed in the near future to develop recommendations for improvements.

7. The Triangle, Edgartown: The convergence of Beach Road and Edgartown-Vineyard Haven Road (both rural minor arterials) results in delays of well over a few minutes at times, especially for vehicles entering and exiting Edgartown-Vineyard Haven Road.



Further study and discussions should be accomplished in the near future for this intersection operations, along with pedestrian and bicyclist facilities.

Other Bridge and Road Improvements

- Mill Brook Bridge in the Town of West Tisbury: MassDOT has this bridge over Mill Brook in the online MassDOT Project Information system; however, when the JTC Member inquired, there were no plans to advance any projects related to the bridge at this time (2014).

8.8 Other Proposed Actions

Actions – General

- Investigate the possibility of limiting the number of rental cars available and encouraging or requiring the use of alternative fuel vehicles.
- Investigate the possibility of limiting the total number of vehicles on the Island (refer to initiatives in Bermuda, Nantucket, Catalina Island).
- Carry out a series of demonstration projects that illustrate context-sensitive solutions to specific issues related to roadway design, pedestrian and bicycle facilities including: guardrails, road shoulders (width, materials, maintenance), roadway edges (vegetation, signage, reflectors, curbs, utility poles, etc.), roadside bicycle and pedestrian paths and barriers or vegetation between the paths and roadway, bridge design, and dirt roads.

Actions - Traffic Mitigation

- Expand the MVC's traffic data collection program to systematically compile information from all sources. Evaluate the capacity of Island roads and bridges to carry traffic, and establish a level of service (LOS) or congestion level monitoring program.
- In reviewing Developments of Regional Impact (MVC) or other projects (towns), establish pedestrian and cyclist amenity design guidelines.
- When appropriate, require transportation management associations (TMA) and reporting on trip reduction to the MVC.
- Require proper driveway location, spacing and frequency.
- Specify proper turn restrictions and access controls.
- Coordinate local land use permitting with The Massachusetts Department of Transportation curb cut applications.
- Investigate the feasibility of auto-restricted zones, "road pricing" strategies and alternative work hours.
- Encourage employers to provide annual or seasonal transit passes for employees, and to monitor and report trip reduction.
- Investigate the feasibility of traffic-reduction ordinances.
- Coordinate traffic regulations.

Actions - Roads and Bridges

- Use physical traffic calming techniques to slow traffic and improve safety in neighborhoods. This was a primary objective identified in the Island Plan, and will likely require a traffic calming workgroup to suggest locations for traffic calming and the proper techniques, which could include short-term efforts such as speed feedback signs and delineators (as currently at the intersection of State and Old County Roads), and more permanent improvements such as speed tables, curb extensions, and narrowing of roads ("road diets").
- Put in place a Pavement Management System for state and local roads in conjunction the Massachusetts Highway Department and the towns that would include the information on the history of construction and repair, the physical design (e.g. thickness and composition of pavement and roadbed as a result of borings, drainage), their current condition, the priority for repair or improvement. Establish a regional road and bridge monitoring and information-sharing program. Conduct pavement-monitoring workshops.

- Enhance road vistas by identifying important viewsheds and by establishing a vegetation planting and maintenance program.
- Develop a comprehensive and coordinated road signage program intended to clearly deliver essential messages while eliminating the roadside clutter from unnecessary repetitive signage.
- Establish uniform "best management practices" in order to minimize the effects of stormwater runoff on environmentally sensitive areas.
- Experiment with prototype road and bridge design features that reconcile safety concerns with preservation of Vineyard character. These could include road guardrails (e.g. the use of steel-backed timber or Corten steel), bridge guardrails (e.g. the use of stone-covered concrete), shoulder design and maintenance (e.g. presence of paving, parking, bus pull-off zones, trees and other vegetation), etc.
- Examine the process by which MassDOT and town highway departments consider aesthetic, historic, and environmental issues in road and bridge decisions and how they solicit and respond to community involvement in order to design projects that respond to the particular needs and circumstances of each community, such as in the ongoing process to replace the Lagoon Pond drawbridge.

Actions – Parking

- The shortage of parking was identified as a critical problem in the Island Plan. Essential to this was the creation of a parking plan, which would assess parking strategies.
- Increase promotion of Park-and-Ride lots and make them more user-friendly, such as by increasing the frequency of shuttles between the park-and-ride lots and town centers.
- Explore resident parking permits.
- Consider means to ensure that in-town parking during the summer is used primarily for short-term parking (e.g. time limits, meters), with Park-and-Ride lots are an attractive and convenient alternative for longer visits.
- Explore the possibility of creating other Park-and-Ride lots for the peak season located further from congested areas. This could include a location in Oak Bluffs as well as Up-Island locations that would allow people living too far from bus routes, to leave their cars and take the bus when heading to Down-Island locations.
- Investigate the feasibility of other parking management programs in town centers, such as agreements for sharing private off-street lots during off-hours; creating preferential parking for car and van pooling vehicles.
- Encourage the MVC and towns to develop project design guidelines concerning the location, size, landscaping, and use of parking areas for developments of regional impact (DRI) and for other developments regulated solely by towns.

9. Buses and Taxis

9.1 Vineyard Transit Authority (VTA) Overview

Public Bus System: The Martha's Vineyard Transit Authority (VTA) is the Island's regional transit authority. A fleet of 27 fully accessible vehicles, with seating capacities ranging from 18 to 37 passengers, provide service on 14 fixed routes from mid-May through mid-October. Due to the great success of a two-year pilot program funded by the towns, the VTA is able to provide public transit service to 12 of these established fixed-route corridors throughout the off-season.

The VTA routes cover nearly all island major roads and all parts of the Island including the main public beaches and two park-and-ride lots. Timed transfers at various locations on the Island allow passengers to plan efficient longer trips. Single one-way fares are $1.25 per town, including town of origin. The cost of bus passes ranges from $8 for one day to $120 for an annual pass. Lower cost passes are available to Island students through the schools and to seniors through the Councils on Aging.

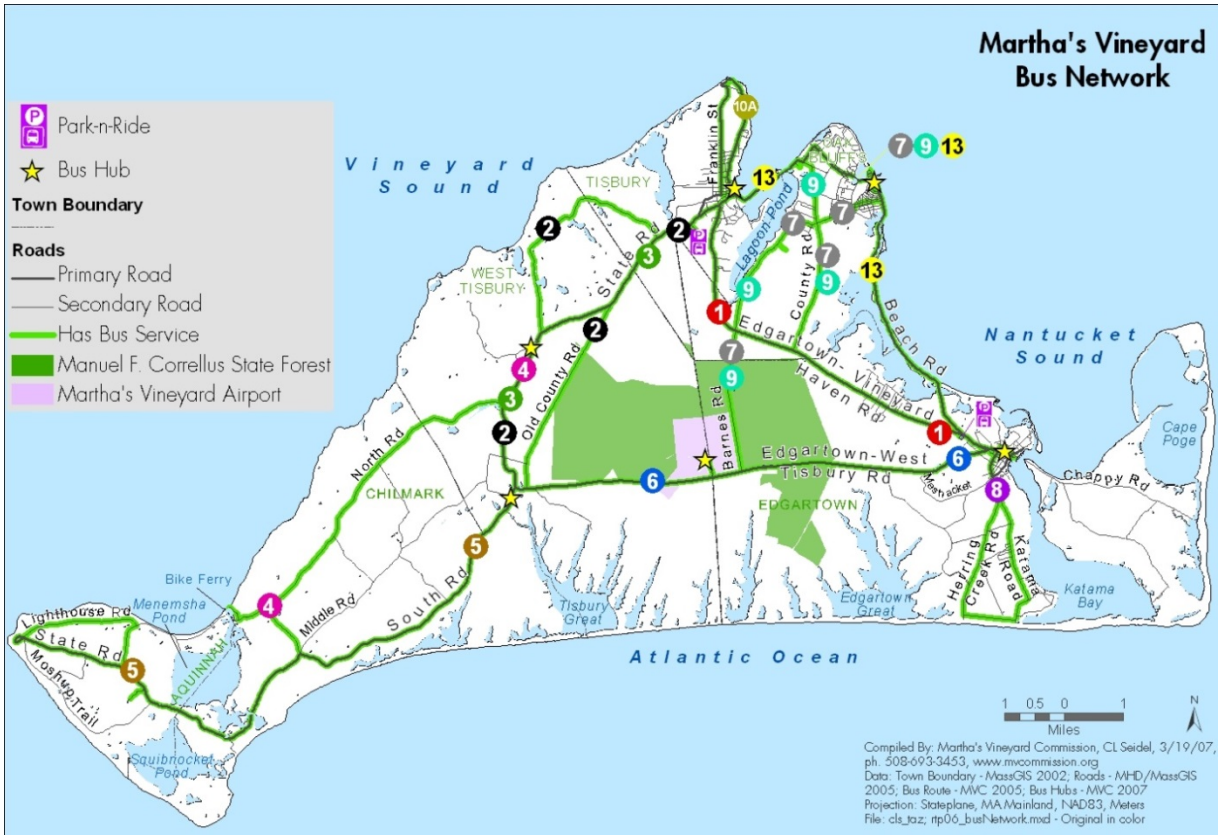
All buses are equipped with bike racks accommodating 2 to 3 bikes.

The VTA operates paratransit van service, as required by law, giving access to the bus routes to eligible disabled individuals. The service runs within ¾ mile of each route. In addition to paratransit trips, the VTA provides contract transportation to the Adult Day Care Program and Senior Lunch Programs and provides a van to Windemere Nursing Home for use by its residents. In addition, one day each week a van goes to Boston-area medical facilities. Collectively, these services are known as 'The Lift'. Service is provided with five 10- to 16-passenger vans. Paratransit and other van services are the most expensive transportation the VTA operates and the population in need of these services is growing.

VTA Fares	1/1/2015	1/1/2016
One Day Pass	$8.00	$8.00
Three Day Pass	$18.00	$18.00
Seven Day Pass	$25.00	$30.00
Annual Pass	$120.00	$130.00
Senior Annual - Island	$25.00	$30.00
Youth Annual - Island	$35.00	$40.00
Zone Fare - Fixed Route	$1.25	$1.25
Zone Fare - Lift	$2.00	$2.00
Zone Fare - Senior / Disabled	$0.75	$0.75
Medivan	$15.00	$15.00

Fare-box revenues provide about one third of the required funding, with the balance coming from Federal, State, and Local sources. Annual financial planning for VTA operations and capital programs is hampered because the extent of guaranteed funds, in recent years,

is often undetermined prior to the end of the fiscal year. A summary of recent VTA capital and operating revenue sources is included in the financial section.



The VTA is governed by a six-member Advisory Board comprising one representative from each island town. In addition, in1998 the VTA created the VTA Consumer Advisory Group, which meets quarterly and consists of local social service agency members, business community members, transit consumers, VTA staff, and members of the public. The purpose of this group is to discuss transportation issues and provide input to help the VTA better plan its transportation system.

Tour Buses: Three on-Island companies, all owned by the same individuals, provide tour bus service. They generally offer two-and-a-half-hour tours, usually originating at the Vineyard Haven and Oak Bluff ferry docks. These companies, which are regulated by the State, also provide three-and-a-half-hour charters as well as transport for weddings and other large groups. It is estimated that 2,000 tours, charters, and transfers are provided per year, with an average of 30 passengers per trip.

In addition, there are organized charter tour groups from the mainland bringing large coach buses on Island, especially in the spring and fall, estimated at a minimum of 25,000 passengers annually.

School Buses: The Martha's Vineyard Regional School District owns and operates twenty-one buses to provide service to six schools. These buses are maintained by the VTA. The High School also provides special education transportation with two minibuses. The district has three additional buses off-Island for field trips and sports runs for Vineyard students. The Edgartown Elementary School provides bus service

with four buses and one minibus. The Charter School in West Tisbury operates school buses for their students.

Taxis: There are about 15 taxi companies on the Island operating a total of about 70 taxis. Companies are licensed by individual towns, which restrict taxis to only pick up customers in the towns where they are licensed.

9.2 Trends and Analysis of Issues

Public Buses: With the acquisition of private bus companies in 2001, the Regional Transit Authority's annual fixed route ridership has grew from 71,500 passenger trips in 1997 to roughly 1.2 million in Fiscal Year 2014.

The annual ridership was up 6% overall in FY2014 over FY2013, and up 2% in the off-season. In August 2014 of FY2015 a new monthly ridership record was set. Fixed Route ridership continues to grow, with the first six months of FY2015, July through December, up 53,912 passenger trips.

Extending the reach and use of the transit system, and possibly bicycle facilities, the VTA does have bicycle racks on all the fixed route vehicles. In FY 2014 the VTA carried 21,252 bicycles on its buses, and this is a great back up for bicyclists to have the option to connect with transit for part of their trips.

VTA Fixed Route Ridership, FY 2015

Month	FY 2015
July	293,708
Aug	323,949
Sept	140,739
Oct	76,286
Nov	32,380
Dec	28,628

The growth in transit use and consolidation of the year-round, Island-wide public transit service has reduced the need for automobile trips and has improved the quality of life for residents and visitors. It provides a viable option and increased mobility for residents and visitors. The Island population transit users span all population groups from older school age children and teenagers, the working group, to the growing group of elders. Islanders ride the bus for varying trip purposes, including to work, shop, and play.

VTA Fixed Route Ridership by Month for Fiscal Years 2005-2014

Month	FY 2005	FY2006	FY2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014
July	200,671	210,985	218,789	228,006	261,735	245,214	269,237	290,248	275,455	282,606
Aug	214,511	235,088	235,105	254,856	286,044	265,384	265,686	268,749	291,568	303,175
Sept	89,664	103,252	102,510	118,503	107,316	131,257	118,462	133,887	126,859	129,661
Oct	44,558	39,553	51,790	62,250	69,594	60,675	63,907	67,217	57,637	71,666
Nov	12,894	14,846	20,081	24,920	29,142	28,092	29,096	29,635	29,986	30,053
Dec	9,173	11,121	16,424	18,739	23,381	22,859	23,309	23,750	24,661	24,617
Jan	7,008	9,954	14,605	18,827	20,659	20,364	21,060	22,839	22,162	21,299
Feb	8,013	9,471	12,987	18,980	20,720	20,040	19,673	22,456	20,106	21,624
Mar	10,741	12,450	18,050	23,792	25,737	26,987	25,694	28,798	27,036	26,033
Apr	17,843	21,832	25,265	34,355	38,125	39,630	35,092	42,834	39,240	41,834
May	43,891	53,129	69,461	78,874	84,607	91,324	88,395	90,976	87,167	92,847
June	110,243	99,557	133,831	149,095	*136,628*	147,514	148,881	161,667	158,389	179,172
TOTAL	769,210	821,238	918,898	1,031,197	1,103,688	1,099,340	1,108,492	1,183,056	1,160,266	1,224,587

The substantial increase in the Tisbury park-and-ride ridership in recent years is partly the result of increased coordination with the Steamship Authority vessels, with a commitment from the Steamship Authority to wait for the park and ride before the boat departs, along with increased downtown parking enforcement by the Town of Tisbury Police, and the free Park and Ride bus. The Tisbury park-and-ride service – the cost of which is split between the town and the Steamship Authority – significantly reduces traffic congestion around the SSA's Vineyard Haven terminal and Five Corners area.

VTA's Paratransit Service "The Lift"

Paratransit and contract human-service transportation made 13,302 trips in FY2014, a 0.6% increase from FY2013. The operating cost of this service was about $490,000. The increased coverage and frequencies of the fixed-route system meets the needs of many previously Lift-dependent individuals, fostering greater mobility and independence. This led to a decline in the Lift ridership that has now leveled off. With many seniors wishing to age in place, there may be additional demand on the paratransit service.

The biggest issue facing the VTA is guaranteed capital and operating funding. The VTA is considered a rural transit authority. There are no Federal formula funds for rural systems. Federal operating assistance for rural systems is administered by the Massachusetts Department of Transportation. The VTA has no guaranteed capital funds. VTA capital funds primarily come from MassDOT in the form of Regional Transit Authority Capital Assistance Program. The VTA is given a contract for capital funds annually. The VTA is not made aware of how much capital money it will receive until the beginning of the fiscal year for which the money is intended, making funding capital plans challenging. The VTA also applies for grant funding through MassDOT for capital needs when there is potential funding that VTA is eligible to apply for from the state.

As of August 2010 the VTA had replaced 50% of its fixed route fleet, but the majority (85%) were funded by the federal American Reinvestment and Recovery Act with and State RTACAP funding the balance.

Taxis: All towns but Chilmark license taxi businesses, taxi vehicles and taxi drivers to operate within their specific town. While each town's regulations require its taxis to comply with the taxi regulations of other towns in which they are dropping off passengers, that is an impossibility given that the regulations differ from town to town. Add to this that taxis on the island, with multiple passengers and destinations, are more similar to off-island shuttle operations than conventional taxis, and it is not surprising that customer confusion – and complaints – exist, even among Island residents.

Island-wide licensing has been discussed periodically over the past several decades without substantial change. Increasingly, the taxi businesses, some of which are licensed in more than one town, are concerned about the differences in regulations from town to town. Dissatisfaction with taxi service surfaced as a significant issue among the Healthy Aging Task Force and in late 2014 a renewed look at ways to improve taxi licensing by towns and operations by businesses got underway. Some of the items being

focused on are uniform licensing requirements and background checks for drivers, better identification of vehicles, and greater clarity and predictability in fares.

There is also discussion about allowing taxis to pick up passengers in multiple towns, possibly with an "island-wide" license. This could improve efficiencies for taxi businesses by reducing deadheading, and increase taxi availability for customers. Reducing deadheading benefits the larger community by reducing duplicate trips, which lowers the number of vehicles on the road, amount of fuel burned and amount of emissions that pollute the air.

Any changes that impact the licensing and operation of taxis is of great concern to the businesses that have invested in these services. The latest challenge to taxi businesses and town control of such businesses is the technological advances that have made so called "for-hire" car services like Uber readily available alternatives to taxis. States and communities across the nation are grappling with the legal issues. To date, there is no consensus on how or whether this new business model can be regulated at the local level..

Charter Tour Buses: SSA figures show that over the last several years, a greater number of large charter coaches have decided to bring their bus over on the ferry for the day. This issue is of concern because many of these coaches are very long and wide given the Vineyard's road structure. Towns typically restrict tour buses to certain roads.

Objectives

Improve efficiency, coordination of service, and promotion of all means of "collective" transportation, as an alternative to the use of private automobiles.
Encourage increased use of public transit for year round and seasonal residents.
Encourage greater use of public transit to older children and teenagers for all purposes of trips.
Continue to optimize passenger facilities, scheduling, routing and maintenance as well as promotion and information of public transit to present or potential riders.
Provide efficient, convenient, and appealing taxi service as a necessary component of the Island's transportation system to provide passenger-specific transportation,

9.3 Proposed Projects and Actions

Short-Term Actions

Increased operating assistance to the VTA from the Massachusetts Department of Transportation and rural Federal funds.
Program capital funds for bus replacement.
Continue coordination efforts on funding with VTA and MassDOT for system operations, capital expenditures, and infrastructure needs.
Improve the locations and physical installation of bus stops, including, where appropriate, the construction of shelters, in harmony with the character of Island roads.
Continue the installation of intelligent transportation systems (ITS), automatic vehicle locators (AVL) and on-board cameras to increase the use of public transit by increasing the awareness about transit services through the dissemination of reliable real time transit information to passengers.
Make a commitment to year-round residents on minimum fixed-route service levels on all routes year round.

Offer detailed trip planning on-line and in mobile applications.
Community outreach and education of transit services, with perhaps a re-branding of the transit system.
Adopt a uniform procedure among towns for licensing taxi drivers and taxi vehicles.
Encourage posting taxi fares at main stands (ferry and airport) and more effective postings in taxi vehicles.

Other Actions
Work with MVC on assessing sidewalk and bus stop needs for the transit system.
Work with the Towns to allow transit vehicles on less-congested roads during peak travel times.
Work with local zoning, approval, and licensing boards to make transit considerations part of the permitting process, as the VTA can (and does) substantially mitigate traffic congestion. Town and other various licensing boards must be educated to the benefits of transit and must include a mitigation fee to projects Island-wide.
Focus on the non-peak travelers by continuing to improve service in the off-season months.
Publicize the availability of off-season public transportation services by continuing to improve signage, coordinated scheduling, use of printed material and web sites, and other marketing techniques.
Work with surrounding regions, especially Cape Cod and Nantucket, to lobby for changes to current methodology for distribution of federal and state transit capital and operating funds to take greater consideration of seasonal demands.
Work with taxi businesses to develop uniform taxi regulations consistent across the Island.
Explore the feasibility of a multi-town board to perform some administrative functions of regulations and handling complaints.
Promote the complete network of non-automobile transportation facilities – buses, tour buses, taxis – as offering a complete and viable alternative to car use.
Improve the information provided to arriving visitors about their travel options so they quickly understand the relative merits of bus, taxi and tour bus – for example in flyers with ferry tickets, brochures available in tourist information booths, and signage at ferry terminals and at the airport.
Work to improve pedestrian and bicycle facilities to complement bus service.

10. Bicycles and Pedestrians

10.1 Context

Walking and bicycling not only play a vital role in the Vineyard's transportation network, but they are important means to promote fitness and a healthy community. Non-motorized modes have many benefits - economic, health, and cultural - not associated with the motorized modes of travel:

- Physical fitness;
- Emission-free, cleaner air;
- Means of experiencing the Vineyard's natural character - the principal asset the Island offers visitors and Islander's alike;
- Reduced demand on existing road infrastructure, which better enables retention of narrow roads and scenic qualities;

- Cost-effectiveness - walking and cycling are generally cheaper than other modes, both in cost to the public for infrastructure and in cost to individual pedestrian and cyclist.

MassDOT made the promotion of walking and cycling (as well as public transit) one of the three primary goals of its 2010 GreenDOT Policy Directive and in 2014 further emphasized these travel modes through the Healthy Transportation Compact promoting concepts such as Complete Streets.

A large number of trips on the Island are by pedestrian and bicycle. The majority of visitors to the Island come on foot rather than by motor vehicle, and many additional visitors arrive by bike. Both walking and biking are popular recreational activities. Group bicycle tours operate in the summer and shoulder seasons.

Most of the Vineyard's sidewalks and shared use paths dedicated to non-motorized travel lie in the Down-Island towns of Tisbury, Oak Bluffs and Edgartown. The relatively compact nature of these town centers are conducive to walking and cycling, but gaps in the infrastructure, narrow road rights-of-way and competition for vehicles traveling and parking are impediments. The more bucolic rural roads of Up-Island towns are less heavily traveled by vehicles but are mostly absent of sidewalks or shared use paths, placing greater strain on the ability of the narrow roads to accommodate the variety of users.

As a seasonal resort community, the Vineyard must keep in mind the perspectives of its visitors as well as its residents. Many visitors may be unfamiliar with the local roads, unaccustomed to being in close proximity to high-volume traffic when cycling or walking, and ill-prepared to deal with roadside hazards such as sand on the road shoulders. A significant portion of residents and visitors are elderly, who may have particular difficulty with uneven or poorly illuminated sidewalks.

Perhaps the biggest improvement to bicycle and pedestrian environment since the last regional transportation plan is the replacement of the four-way stop intersection at a central point of the Island with the Vineyard's first roundabout. It narrowed the lane crossings for pedestrians and cyclists, as well as created formal bus pull-offs for all four legs of the intersection.

10.2 Description and Analysis of Existing Facilities

Pedestrians and cyclists share many characteristics, and largely share transportation infrastructure. This infrastructure includes four types of surface routes that, combined, comprise the network for both walking and bicycling: on-road, sidewalk, shared-use path (SUP), and trail. These two transportation modes also have distinctions that need to be taken into account if they are both to be properly accommodated.

Roadways

The Island's narrow roadways are a key feature in experiencing as well as defining the Vineyard's character—from the intimate, human scale of the town centers to the winding, tree-canopied rural roads. These attributes make them attractive for cyclists and pedestrians despite the hazard posed by narrow roads. Both pedestrians and cyclists are also often compelled to use the roadways, as there is inadequate additional right-of-way for a path, sidewalk, or trail, and no alternative public-access route. Competition by various transportation modes for use of this limited roadway width, combined with the high speed of motor vehicles, reduces the level of comfort and safety for all modes of travel. This is especially so for pedestrians and cyclists, who may be less visible to or less anticipated by motorists, and at the same time more physically vulnerable.

Cyclists may also prefer to use the roadway even when a shared-use path is an available alternative. This usually is for reasons of safety: experienced road cyclists often travel at relatively high speeds (in excess of 15 miles per hour), which is too fast to safely mix with slower-moving cyclists, pedestrians, and in-line skaters on shared-use paths. Also, the shared-use paths are less likely to be clear of surface debris that is particularly hazardous for narrow road-bike tires. Debris on the roadway shoulders typically force experienced cyclists to the vehicle travel lane. The American Association of State Highway and Transportation Officials (AASHTO) standard for desirable shoulder width is five feet, uncommon on the Vineyard for many reasons. Up-Island roads in particular often lack any usable shoulder; bicyclists stay to the right of the pavement, which may be within the vehicle travel lane or to the right of the fog line (the white line on the outer edge of the travel lane), where the width of the paved shoulder, if any, varies considerably even along a single road.

As with mopeds, motorists waiting to pass slower-moving cyclists can result in congestion and motorist impatience, especially in summer. Motorists need to recognize that bicyclists have as much right to use the roadway as motorists, which holds true even when a shared-use path parallels the roadway. Cyclists on the road are responsible for conducting themselves as if they are a motor vehicle, including riding with motorized traffic, in single file when cars are present, and as far to the right as safely possible. Motorists are legally required to give bikes a minimum three feet of clearance when passing and to do so at a reasonable speed.

In areas where it is impossible to provide off-road bicycle or shared-use paths, the designation of bike routes – roads best suited to handle bicycle traffic because of lighter traffic and/or the presence of shoulders – can guide cyclists to use these safer routes.

Sidewalks

Town centers, particularly Down-Island, see heavy pedestrian activity, especially in summer. The dense, historic layouts of the downtowns of Vineyard Haven, Oak Bluffs, and Edgartown make it difficult to accommodate large volumes of pedestrians, bicyclists, and motor vehicles despite the many existing and planned amenities for pedestrians and bicyclists. Narrow public rights-of-way often leave little room for sidewalks, let alone wider shared-use paths. The condition of the

sidewalks and pedestrian congestion effectively prevents their use by cyclists, who are relegated to the roadway, which can further congest motor vehicle traffic.

Many sidewalks are less than four feet wide, are obstructed in many places with utility poles, signs and mailbox posts, or have uneven surfaces. These limitations are particularly problematic for the handicapped and elderly, people with strollers, and visitors with luggage. Even without obstructions, sidewalks can overflow with pedestrians near ferries in Vineyard Haven and Oak Bluffs, and shopping areas in all of the down-Island towns, and by queues for buses. Pedestrians often spill out onto the roadway which frequently conflicts with automobiles.

In certain downtown areas, pedestrian ways are sometimes merely indicated with lines painted on the asphalt, not delineated at all, or the right-or-way is insufficient to even dedicate a pedestrian area. This absence of a continuous pedestrian pathway network forces pedestrians to walk in the roadway, a safety concern that can also increase traffic congestion.

In other areas, such as Upper State Road in Tisbury and Upper Main Street in Edgartown, sidewalks exist but the layout of buildings is automobile-oriented, with large parking lots and frequent curb cuts undermining the principle that pedestrians have priority. Such layouts are not conducive to walking from business to business.

The much less developed Up-Island towns have few sidewalks. West Tisbury's Paths by the Roadside Committee successfully worked with MassDOT and abutting landowners to create hybrid sidewalk-paths alongside two busy roads. These four-foot-wide asphalt paths without curbing complement the town's rural character, meandering around trees and undulating with the terrain, yet accommodate wheelchairs. They typically are within the road right-of-way but separate from the road pavement. While these paths are sometimes used by cyclists, they are not generally suitable for cycling due to their narrowness which, like sidewalks, makes it difficult to pass other bikes or pedestrians.

West Tisbury has added more traditional curbed sidewalks in segments of its town center which is a hub of public spaces and activities, as well as a transit bus hub. Both Chilmark and Aquinnah are examining creating dedicated pedestrian infrastructure to improve safety at locations that receive heavy movement of pedestrians.

Shared Use Paths

Thirty-seven miles of shared-use paths (SUPs) Down-Island and around the State Forest link the major population centers with many primary tourism destinations, the Island's largest recreational property, and West Tisbury. The paths are used by a complex mix of skilled and less-skilled bicyclists, pedestrians, joggers, in-line skaters and horseback riders. Motorized vehicles - including mopeds - are prohibited, but use by Segways – which cannot use the roadway like a bicycle – is increasingly common. Having been stitched together over more than 35 years, the SUPs vary in width, condition and separation from motor traffic.

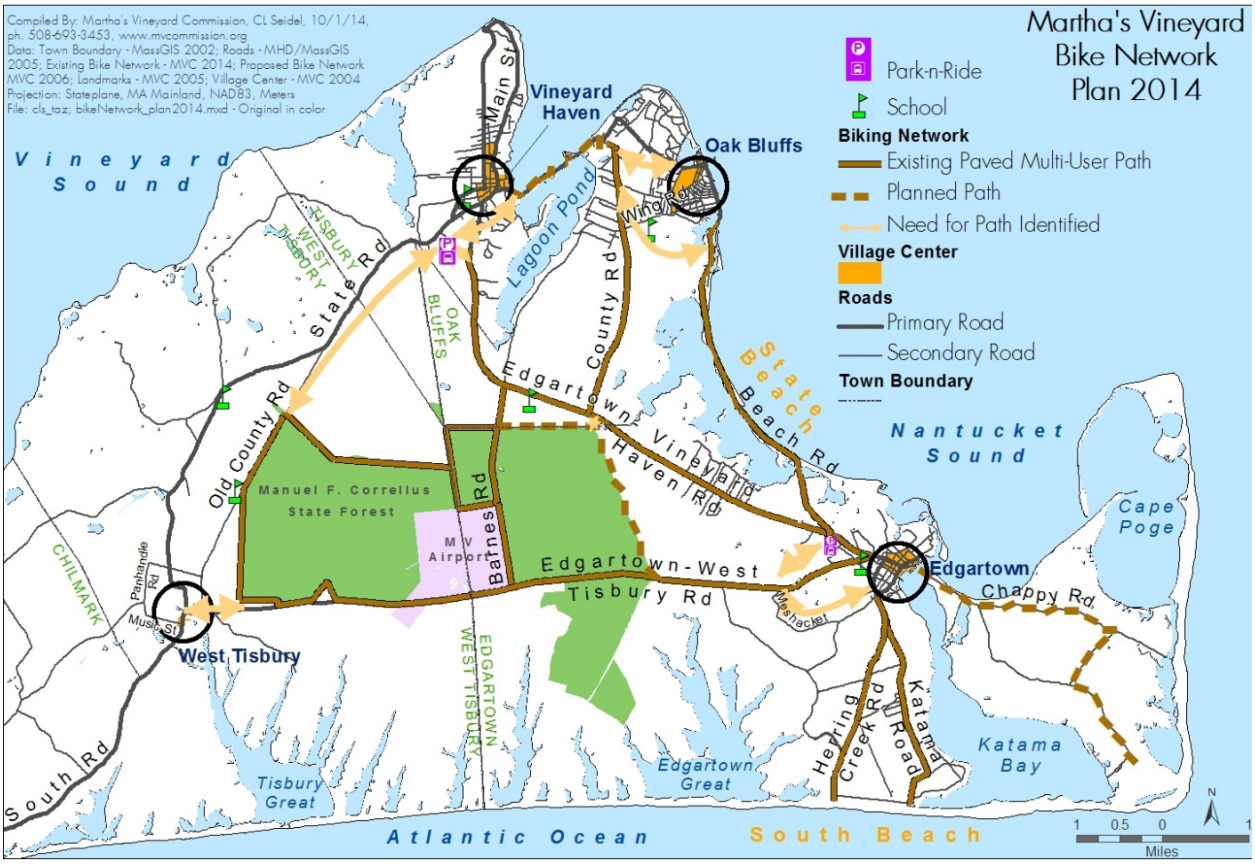
The first "bike paths" were constructed in the mid-1970s along Beach Road from Edgartown to Oak Bluffs and the paths around most of the perimeter of the State Forest. These are generally eight feet wide. SUPs constructed in the 80's and 90's spanned most of the miles between the three. Only with the turn of the century have the newest additions in Edgartown and Tisbury been ten to twelve feet wide – respectively, AASHTO's minimum and standard width for SUPs.

With the exception of the State Forest paths, nearly all of the SUPs lie within the adjacent roadway right-of-way, running parallel usually three to five feet from the pavement. The 1970's era Beach Road SUP, with about a four-foot separation, remains the only roadside path with a vertical physical barrier of more than 100 feet in length. The others have vegetation, including some with shrubs and mature trees, but mostly just grass. The absence of a physical barrier allows vehicles to pull off onto the SUPs. Along roads with more development, the frequency of vehicles crossing the horizontal buffer results in no vegetation and wheel ruts. Horizontal separations of less than two feet are often patched with asphalt.

Remaining gaps in the Island's SUP network was examined in a study commissioned by the MVC in 2009. The Pre-Feasibility Study of the Extension of the Martha's Vineyard Network of Shared-Use Paths examined the most critical missing links in the existing SUP system and evaluated several alternatives for each segment. The bike paths provide direct links between the Down-Island towns, but stop at the perimeter of the downtowns and, notably, do not connect to the ferries. Bicycles are thus reintegrated with motor vehicles at the very places where the roadways are the most congested. Bicyclists face downtown access and parking issues similar to those faced by motorists.

Major gaps in the SUP network are:

- Contiguous path from Oak Bluffs to Vineyard Haven;
- Contiguous path through or around Vineyard Haven and Oak Bluffs;
- Connections into the hearts of town centers, including West Tisbury, particularly to the ferry terminals; and
- NE quadrant of State Forest perimeter
- Up-Island towns of West Tisbury, Chilmark, and Aquinnah.



Public rights-of-way are often insufficient to accommodate a separate SUP. Even when the right-of-way width is adequate to fit both a roadway and SUP, the roadway typically meanders within the right-or-way, eliminating a continuous remaining right-of-way of uniform width for a path along one side. Edgartown addressed this issue in the last decade during a major resurfacing of Herring Creek Road in Katama; the roadway was shifted several feet to one side of the existing right-of-way to allow a consistent, continuous space for a new shared-use path. The town's cost to reconstruct the road and provide a new SUP was roughly $350,000 per mile, as opposed to an estimated $100,000 per mile to simply resurface the roadway. This approach was used for a modest portion of the existing SUP along County Road in Oak Bluffs to improve the buffer between the existing path and the road. This approach of "reclaiming" the public's rights-of-way could have broad application across the Island.

Other constraints to creating new SUPs, particularly for the Up-Island towns, are landscape features, such as stone walls or major trees, which contribute to the character of rural roads. There is also concern that paths along some of the narrower or more heavily vegetated roads could widen the appearance of the roadway, which is known to promote faster vehicle speeds. Vegetation or railing between the road and the SUP can help mitigate such effects.

Even where the SUPs exist, safety issues remain:

Narrow width for volume and variety of users: The combination of pedestrians, in-line skaters, cyclists traveling at different paces (or stopped altogether), dog walkers, strollers, and bike trailers is often confusing and treacherous. A center line for at least portions of SUP segments could address this problem.

Inadequate buffer from roadway: Significant segments of SUPs have no physical barrier from the roadway - only a few feet of earth or grass. This provides a less-forgiving situation should either path user or motorist veer off course. This also enables the casual (and usually illegal) use of the SUP by vehicles for stopping, turning, and even for parking, blocking use of the SUP and presenting a danger to pedestrians and cyclists. Such use is evident in many locations on the Island where high motor traffic has worn away all vegetation in the buffer area, further blurring the separation of road and path.

Frequent vehicle crossings: When parallel to a roadway, a SUP crosses all roads and driveways intersecting the roadway. These vehicular crossings are especially treacherous for cyclists, as motorists are focused more on other vehicular traffic and with pedestrians in the immediate area and less alert to cyclists on the path, who may be farther away but traveling at higher speed. The narrow separation of SUP and roadway often results in autos blocking the path as they await a clearing in the traffic. Some towns' practice of placing STOP signs for bikes at many of these crossings - often only a driveway - is counter-productive in that they are not legally enforceable, reduce cyclists' observance of other traffic signs, and falsely suggest to both motorists and cyclists that the motorist has the right-of-way at such crossings.

Insufficient maintenance: SUPs on the Island are plagued by cracks, potholes, debris, and overgrown vegetation, all of which reduces safety and deters use. The extensive SUPs in the State Forest suffer since the forest superintendent has insufficient resources to provide adequate maintenance. At other places, sand from beaches, erosion, or motor-vehicle crossings poses a threat to cyclists. The most heavily used SUP, along Beach Road between Oak Bluffs and Edgartown, runs the length of an exposed barrier beach and is regularly sand-covered, in addition to being rutted and cracked, as well as effectively only four feet wide at several points. The Island's MassDOT superintendent has acquired a small sweeper specifically for the SUPs, but sand is ever present along the SUPs and road shoulders across the Island.

Trails

The Vineyard has a large network of unpaved paths and trails, many times more extensive than the shared-use paths. As with the SUP network, these trails provide walkers and, often, cyclists an important alternative to the roadways. More importantly, the trails greatly expand the network available to non-motorized traffic, connecting neighborhoods to one another and to public lands, or providing "short cuts" to nearby destinations.

Insert updated trails map

The trails vary considerably in surface material, grade, and width — from narrow grass-covered footpaths to overgrown eight-foot-wide dirt roads — even along the length of a single trail. This variability limits the paths' utility for handicapped users, for strollers or bike trailers, and for road cyclists. These trails may also be used by equestrians and – illegally – by motorized dirt bikes and ATVs. Regardless, pedestrians and cyclists might make greater use of these paths if better information about the trails were available.

More than a dozen trails contain an historic connection to the Vineyard's cultural past, with remnants of dozens of old cart paths predating the automobile, and even European settlement of the Island. Many of these trails - commonly referred to by the loose designation "ancient ways" - were the Indian paths and settler roads of yesteryear, connecting villages and running to great ponds and woodlots.

The Island community recognizes the importance of the trail network; one of the first Districts of Critical Planning Concern the MVC established at its inception in 1975 enabled towns to protect these paths as "Special Ways." All but one town has at least one such Special Way. While designation does not alter rights to use the way, it does prevent destruction and inappropriate use, and preserves a way's viability for future use. In addition, the Martha's Vineyard Land Bank Commission was created in 1986 by the Island's citizens to protect important Island areas in the face of accelerating development. One of the land bank's primary objectives is to protect and expand the existing network of trails to connect conservation properties throughout the Island. Several towns have trails and by-ways committees with the same purpose.

10.3 Objectives

General Objective
Promote and facilitate walking and bicycling as a way to promote healthy lifestyles, increase mobility, reduce traffic congestion, save energy and improve air quality.

Specific Objectives

- Encourage the increased use of walking and cycling by residents and visitors.
- Inform the year-round and visitor population of the rules of the road and safety measures with an educational campaign.
- Enforce existing laws for motorists, bicyclists, and pedestrians.
- Provide a continuous network of safe, off-road, shared-use paths linking the Edgartown, Oak Bluffs, Tisbury, and West Tisbury town centers and the State Forest.
- Ensure that there is a complete network of safe and unobstructed sidewalks in town centers and other areas of medium or high pedestrian activity.
- Improve the treatment of road shoulders and edges for bicyclists and pedestrians, and designate bike routes to key destinations not served by SUPs.
- Complete the network of trails to link all significant destinations across the Island.

- Provide adequate directional and informational signage as well as rest areas, seating, bicycle parking, and other amenities.
- Improve SUP maintenance.
-

10.4 Proposed Projects and Actions

Short-Term Projects (2016-2020)

- Redo Edgartown sidewalks between Upper and Lower Main Street.
- Improve the SUP through the Hospital site and improve the existing segment along Eastville Avenue (MV Hospital, Oak Bluffs).
- Create a SUP along the eastern and northeastern perimeter of the Manuel Correllus State Forest (Edgartown) to complete the perimeter loop of the Forest.
- Create a short SUP segment connecting the northeast corner of State Forest to the Vineyard Haven-Edgartown Road shared-use path (Oak Bluffs).
- Create a continuous SUP from the drawbridge to Sunset Lake (Oak Bluffs).
- Realign additional portions of County Road to provide buffer space between the road and the existing shared-use path (Oak Bluffs).
- Ensure that town codes and MVC development review promote walking and bicycling access to adjacent neighborhoods and to public roads.
- Develop an educational campaign informing people of the rules of the road and safety measures.
- Selectively post "Share the Road" signs and paint "sharrow" road markings, including where SUPs are adjacent to the road.
- Conduct an inventory of road, SUP, and sidewalk signs with the intent of minimizing clutter and providing clear information.
- Evaluate road speed limits for appropriateness and propose measures for traffic calming.

Figure 36: Shared-Use Paths – Proposed and Possible Links

Description	Length approximate, miles
Proposed Links – Identified Routes	
Tisbury - Beach Road (Winds Up to Tisbury Market Place)*	0.46
Oak Bluffs - Drawbridge to County Road	0.38
Oak Bluffs – County Road to Downtown	0.80
State Forest - Northern edge	1.10
State Forest - Eastern edge	2.00
Northeast corner of State Forest to Edg-VH Road	0.01
*part of TIP project endorsed by JTC	

Possible Links – Routes Not Identified	
West Tisbury Village to State Forest	0.85
Tisbury/West Tisbury - Park-and-Ride to State Forest	6.00
Tisbury - Park-and-Ride to Veteran's Park Area	1.00
Oak Bluffs – Seaview Ave (Farm Pond towards SSA)	0.64
Oak Bluffs - County Road to Seaview Road (south of town)	1.20
Edg-Vineyard Haven Road to Edg-West Tisbury Road	1.30
Edg-West Tisbury Road to Katama Road	2.00
Chappaquiddick – ferry to Wasque	4.50

Actions - Bicycles

- Informing visitors of the existence of SUPs and trails, as well as the natural, cultural, and historic attractions available to touring bicyclists;
- Providing information to individuals and organizations about bicycle commuting;
- Involving the private sector in promoting and providing for bicycling.
- Set up a bicycle working group with the mandate to analyze the network with respect to safety and convenience (especially for the Vineyard's many novice riders), and prepare a program for path upgrades. Look particularly at the design of SUP intersections with roads and driveways, opportunities for improving the barriers dividing the paths from roadways.
- Paint centerlines on SUPs.
- Ensure that appropriate bicycle accommodations (e.g. paths or easements, parking areas) are included in new projects through the town or MVC project review process.
- Set up a campaign in schools and for the general public promoting bike safety and the idea of drivers sharing the road.
- Improve bicycle access to transit, bus, air, ferry terminals, and park-and-ride lots, and provide bicycle-parking facilities at these locations.
- Address bicycle safety and access in the planning, design, construction, operation, and maintenance of transit, airport, highway and bridge projects.
- Expand the network of Special Ways designated by the towns.
- Continue to support activities of town Trails and Byways committees.

Actions - Pedestrian Facilities

- Work with schools to identify "Safe Routes to School" and improvements that may be necessary.
- Encourage walkers by increasing the appeal of the pedestrian environment, particularly in village and commercial areas, by providing continuous and adequately-dimensioned sidewalks and well-marked crosswalks, as well as services such as shelter and weather protection, comfortable places to sit, signage, information centers, water, restrooms, plantings, lighting, and trash receptacles.

- Create and upgrade walking routes – including off-street, low-maintenance footpaths – connecting residences, parks, workplaces, tourist, and shopping attractions and public transit stops.
- Encourage supplemental activities, such as business district improvements and fitness programs by the private sector that help promote a suitable and effective environment for walking.

11. Freight

11.1 Description

Freight traffic to, from, and on Martha's Vineyard represents a vital element of Island life, and has a substantial impact on its transportation system. Freight in the form of mail, express packages, fuel, food and building materials represent the major items shipped to the Island. Trash (both waste and recyclables) is shipped off-Island. Means of shipment include tug and barge, Steamship Authority ferries, licensed private ferries, and commercial aircraft including FedEx. Trucks up to 70' long can be accommodated on Steamship Authority ferries, which carry more than 45,000 freight trucks annually.

Most freight is shipped to the Island by truck using SSA ferries and freight boats linking Woods Hole to Vineyard Haven or Oak Bluffs. In addition, some freight is brought in by barge to the Island's only barge docks (Packer) in Vineyard Haven. Air freight is used for smaller, time-sensitive shipments.

The main companies that handle primarily general freight on-Island are Cape Express, Carroll's and Sun Transportation, although other companies sometimes make deliveries to the Vineyard. The main companies concentrating on express deliveries are FedEx and UPS.

General freight is brought in large trailers (50-70' long, 18-wheel, 5 axles, 80,000 lbs. loaded weight) and is transferred to smaller trucks for deliver to Island destinations (30-35' straight trucks, 2 axles, 20-25,000 loaded weight; or 25' cube trucks, 2 axles, 10,000 lb. loaded weight).

11.2 Trends and Analysis of Issues

Traffic of large trucks has been generally steady over the last twenty years, reflecting the static pattern in passenger trips, and indicating stability in operations that does not warrant major action. (Note that the SSA reclassified pick-ups from "cars" to "trucks" several years ago.)

Of the commodities carried, food represents the highest percentage (38%) of all truck trips, followed by construction material (17%) and general freight and express (14%). Trash and waste products also account for a substantial percentage of all trips (13%).

Over half the trucks coming to the Island are tractor-trailer combinations, indicating a relatively efficient operation minimizing the total number of trucks. Some 60% of the seasonal freight

delivered to the Island is by tractor-trailer to either a major retail location or a "break bulk" terminal.

The transportation of hazardous materials (hazmats) is a concern to the SSA as well as to the towns through which the trucks must pass. Hazmats may only be shipped on open freight boats that do not carry private vehicles or passengers.

Truck Traffic on Ferry
Annual return trips by trucks over 20'

2002	45,894
2003	44,150
2004	45,833
2005	45,703
2006	47,072
2007	47,856
2008	47,335
2009	44,246
2010	44,467
2011	
2012	42,617
2013	45,638
2014	

Source: SSA

The SSA's pricing and reservation policies, charging for truck length rather than weight and penalizing for unused reservations, seem to be working well and appear to have been effective in inducing freight companies to make every effort to ensure that trucks are fully loaded and that the smallest possible truck is used for a ferry trip. However, shippers complain that it is difficult to obtain additional reservations when needed, especially for time-sensitive deliveries such as perishables and express. The Steamship Authority operates a bulk reservation system serving to schedule repetitive daily, weekly and less-frequent freight truck trips to and from the Vineyard. The bulk reservation system divides the year into in-season (May thru October) and off-season (November thru April), providing for trucks to be scheduled by lottery. The nature of the Island's time-sensitive traffic pattern is such that the Authority attempts to schedule trucks to the Island early in the day to maximize delivery and pick-up time during normal working hours.

Types of Freight

Categories of freight in the Steamship Authority bulk reservation system.

Mail: Delivered twice per day by straight truck from the mainland to Vineyard Haven post office and distributed by straight truck to Island post offices. The Postal Service continuously monitors mail traffic for efficiencies, working with the local towns on improvements. Receipt of mail via in-town box delivery is a major source of congestion related to freight, but caused by the general public.

Food: Food deliveries represent some 60 percent of weekend ferry trucking. Groceries are delivered by tractor trailer to Stop & Shop (Vineyard Haven and Edgartown); Cronig's (Vineyard Haven and West Tisbury) and Reliable Market (Oak Bluffs) supermarkets and grocery stores, and Cumberland Farms convenience store. These deliveries represent 80 tractor-trailer loads a week, and are made directly from ferries to Island retail outlets with suitable unloading facilities. Island Food Products, Sun Transport and Coca-Cola further deliver 45 tractor-trailer loads of food and beverage products weekly to Island terminals for distribution by small trucks. The balance of the food and food-related deliveries (such as fish, liquor and restaurant food) represent approximately 75 truckloads per week, largely straight trucks that deliver directly to restaurants and retail outlets, including above-mentioned supermarkets. Hallsmith-SYSCO and Sid Wainer & Sons represent over a third of the deliveries to restaurants and retail outlets that largely lack off-street unloading. Food is also the largest on-Island delivery consideration, with some 80 restaurants and more than

30 other assorted food businesses that have deliveries on a regular basis. Some 10-20 of these businesses require straight trucks to park on public highways, specifically in downtown areas Down-Island. Food shopping is also a major source of Island traffic.

Fuel: Petroleum products (gasoline, kerosene, diesel fuel and heating fuel oil) are delivered to the Island by barge, with SSA ferries also carrying gasoline and propane in tank trucks. Gasoline is delivered to the Island both on Authority ferries, and barged to RM Packer's Shell Oil terminal. Tractor-trailers carried by SSA ferries deliver directly to five service stations in Vineyard Haven, Edgartown and West Tisbury. RM Packer delivers gasoline in 3,000 and 5,000 tank trucks to four service stations in Vineyard Haven, Oak Bluffs and Chilmark. Twenty tractor-trailer loads a week of gasoline are also delivered to terminals at the airport for Island-wide distribution. There are over 15,000 dwellings on the Island, and 5,000 other business and government facilities requiring heating fuel delivery throughout the year, with most necessitating delivery during the season. Propane is delivered to facilities at the MV airport for storage and distribution by residential tank trucks, representing less than 10 tractor-trailer loads per week. Heating oil is delivered to an airport terminal by tractor-trailer off the Authority ferries, and also from RM Packer's Shell Oil terminal serviced by barge from the mainland. Some Island homes are heated by electricity delivered from the mainland by underwater cable. Standby gas turbines for emergency electric power are maintained with supplies of fuel at the Eversource (NSTAR) terminal. RM Packer delivers high-octane gasoline and kerosene to the MV Airport for piston-engine and jet aircraft, respectively. Marine fuel is delivered to docks in Vineyard Haven, Oak Bluffs, Edgartown and Menemsha. Industrial bottled gases are available at RM Packer Company, and are transported to the Island monthly.

Freight & Express: General freight represents some 60 tractor- trailer loads of goods shipped on SSA ferries to Island terminals for distribution by local firms Carroll's Trucking, Cape Cod Express and Sun Transport, and by national carrier UPS. Straight-truck deliveries represent another 15 truckloads, primarily FedEx Ground, though UPS operates up to 10 "brown trucks" during the season from its terminal in Vineyard Haven. Both UPS and FedEx Ground only offer second-day delivery due to the Island's remoteness. Air freight and FedEx represent smaller quantities of goods delivered to the Island, and use the MV Airport as a distribution center with pick-up stations placed strategically about the Island. A majority of freight terminals and waste transfer stations are located on an axis from the port in Vineyard Haven to the MV Airport. Oak Bluffs has recently approved a roundabout at strategic intersection along this route to ease in-season congestion. Barnes and Carroll also provide home moving services on-Island and throughout the country, and additional contract carriers operate on the Island to handle particular

Services: This category represents over 40 weekly straight truckloads of miscellaneous products (e.g., livestock) carried on SSA ferries that are not, for a variety of reasons, shipped by common carrier, and generally require truck and driver to proceed directly to an Island destination or, as with fresh fish, off-Island. This category of freight with driver, truck and cargo closely linked may warrant some special schedule treatment in Authority reservations.

Construction: Building materials delivered to EC Cottle, Goodale's Pit, Georgia-Pacific, Hinckley Home Center, Hinckley Lumber, and White-Lynch represent more than 30 tractor-trailer

loads delivered either to Island facilities or major construction sites weekly in season. In addition, over 50 straight truckloads of various building materials and products are delivered to Island warehouses and stores on a weekly basis. Construction materials are delivered primarily to warehouses and stores on Island for local delivery in smaller trucks, or pick up by local contractors, creating a significant number of trips. It should be noted that aggregate and modular homes are transported to the Island by barge, and that construction is scheduled more heavily off-season.

Trash: Trash collection, transport and shipment off-Island on ferries and barge represents one of the Island's major transportation issues. Municipal waste and recycling pick-up is provided in Tisbury and some portions of Oak Bluffs. Edgartown and Up-Island towns do not offer trash pick-up, but private residential and commercial pick-up is available across the Island, including dumpsters from construction sites. Changes in construction and demolition disposal regulations require that such waste be shipped off-Island directly from construction sites. Municipal trash and recyclables represent over 40 tractor-trailer loads weekly during the season on SSA ferries, with some backhaul of landscaping materials and firewood. The Island ships some 25 tractor-trailer loads weekly in season of municipal wastewater, scrap metal and junk cars, along with one straight truck of renderings and one of medical waste. Additionally, the Island is considering whether and how to take advantage of Nantucket experience with composting as a means of reducing the volume of municipal waste shipped off-Island. The Vineyard, like most coastal areas, requires a significant amount of plant nutrient be shipped to the Island, which could be replaced by compost from municipal organic waste.

Some material in this summary were furnished by Art Flathers

The presence of oversized freight vehicles attempting to navigate narrow Island roads poses many problems.

Daytime in-town delivery leads to congestion on village streets. Very few stores have off-street truck docks. It would be desirable to favor more off-peak delivery; however, attempts by freight companies to deliver early are often stymied by the fact that there is no one in smaller businesses early in the morning to receive shipments, forcing the companies to come during the prime shopping and visitor hours. Shippers of perishables tend to deliver to larger establishments, many with better docking facilities; however they are often limited from making early deliveries because of local noise restrictions.

In-town loading zones are often unavailable for deliveries since they are used for long periods by commercial vehicles parked for other reasons (e.g. meetings, lunch).

Though the higher cost of shipping to the Island is often blamed for the high cost of goods on the Island, there is some indication that this is not a major cause. The incremental costs involved in trucking from a mainland port include the tariff, the time of the driver and equipment (at least 3 hours of dead time accounting for ferry schedules that cause need for more equipment and drivers), and the administrative costs of scheduling and dispatching to handle ferry operations. However, the total cost of "logistics" (transportation, inventory and warehousing) is generally 10 to 15% of a final retail product's cost, with transportation representing 3%. In the 1960's, the New England Motor Rate Bureau concluded that the additional transportation cost of shipping to the Vineyard was about 23%, a figure that is probably still valid today. Thus, the average additional cost of a product costing $100 as result of the extra cost of shipping to the Island is probably less than a dollar (23% increase of an approximately $3 transportation cost). The relatively higher cost of some products is attributable to personnel and operating costs associated with Island living, particularly related to high real estate costs, and might also be attributable in part to the fact that retailers have a captive market on the Island.

Truck Trips by Commodities Carried
(per week on SSA ferry - Summer)

Mail	13	2.7%
Fuel	39	8.0%
Trash	71	14.5%
Food	157	32.1%
Freight & Express	76	15.5%
Construction	94	19.2%
Services	39	8.0%
Total	489	100%

2006 data compiled by Arthur Flathers

There are limits on trucking between midnight and 6 a.m. in Falmouth, as a result of concerns about the impact on the local community (which do not apply to facilities such as the Wood Hole Oceanographic Institute, National Oceanic and Atmospheric Administration, US Coast Guard, US Dept. of Marine Fisheries, and other commercial businesses in Falmouth and Woods Hole).

11.3 Objectives

- Ensure that freight is brought to the Island and distributed to its destinations in a timely and efficient way, with minimal negative impact on traffic, on safety and on the environment.

- Reduce vehicular traffic to the ferry passing through Island towns as well as through Falmouth, on Cape Cod Canal bridges and on the Cape, particularly trucks and especially hazardous materials (see also section 6).

11.4 Proposed Projects and Actions

- Explore how a greater proportion of freight, and particularly low-value and less time-sensitive commodities (e.g. lumber) and hazardous materials (e.g. oil, propane), could be brought to the Island by barge instead of by ferry. Explore the possibility of using containerization.
- Look at the possibility of establishing truck routes in order to limit the presence of trucks on roads that pose particular traffic or public safety problems.
- Review the SSA freight policy with respect to its impact on the amount and cost of goods brought to the Island by ferry. Consider the possibility of offering discounts for off-peak travel and for giving priority to time-sensitive freight. Consider the possibility of running more freight boats to facilitate truck access to the Island, particularly early in the morning (e.g. there could be two shifts, early morning and late afternoon) and reducing other trips.
- Look at the possibility of limiting the maximum size of trucks and buses on the roads, or at least discouraging very large vehicles either all the time or at certain hours.
- Explore the possibility of delivery to people's homes so shoppers don't need to take their cars when going shopping. Explore the possibility of expanding mail delivery with increased door-to-door mail delivery in town centers and by encouraging eligible people in other areas to use rural delivery; consider the possibility of satellite mail service at the airport in summer.
- Explore the possibility of reducing the need for transporting waste by treating liquid waste on the Island, and by reducing the volume of solid waste through community composting. Examine the possibility of limiting which vessels are used to transport garbage and septic, and the possibility of using only barges. The Island Plan found that the Island ships 33,500 tons of trash off-Island each year, 15% of the SSA's freight traffic. The Island Plan calls for an integrated, Island-wide plan to reduce the amount of waste generated and the treatment of such, and recommends 11 specific strategies to convert wastes into resources.

12. Multimodal Links and Information

12.1 Description

The various individual components of the Vineyard's transportation network were described in previous Sections. There are many points of interconnectivity between systems, the most notable being at formal transfer points such as ferry terminals and airports, although systems interface in more dispersed ways, such as wherever someone parks a car and takes out a bike, or simply walks to a destination.

The connectivity between modes is often the weakest part of a transportation system. Trips to the Island are especially complex in that they invariably involve more than one mode of transportation. The congestion at and around the Island's ferry terminals (see section 8.4), testifies to the difficulty of a smooth transition between one part of the Vineyard's transportation system and another. The Down-Island town centers generally serve as the Vineyard's hubs between modes, and it is here where the constraints of the Island's historic character are most acute, especially in regards to parking, a necessary component for intermodal transport.

While the town centers bear the brunt of the connections between modes, efforts have been made to reduce the impacts on these areas, primarily through Park-and-Ride lots outside the town centers, and through an emphasis on development at the airport.

The success of a transportation network can also depend to a great extent on the awareness of users of available choices, both in a general way and at specific moments in time.

12.2 Objectives

Improve coordination of operations and promotion of various transportation modes and especially alternatives to the use of private automobiles.

Make the network of non-car transportation systems (bus, taxi, bike) so effective and well-promoted that residents will drive less, and more visitors will be willing to make their visit to the Vineyard without a car.
Investigate the possibility, in conjunction with other federal, state and local agencies, of establishing an intermodal transportation hub at the airport including a bus hub, a major reserve

area for car rentals, and a Park-and-Ride area for town centers and for ferry passengers (possibly including ferry ticket purchase and check-in facilities).

12.3 Proposed Projects and Actions

Actions - Intermodality

Complete plans for intermodal transportation facilities in the Oak Bluffs harbor/ferry area (North Bluff) dealing with the various ferry services (staging, pick up, drop off, waiting areas), cruise ships, marina, bike and car rental facilities, public transit and tour buses, taxi, parking, etc. While some improvements have been made (new ferry terminal, better staging for other ferries) other improvements in the area (repaving, other amenities) remain to be completed, though plans are in place.

Update plans for the Vineyard Haven ferry dock area including adjacent streets and parking areas dealing with the SSA ferry dock (staging, pick up, drop off, waiting areas), marina, bike and car rental facilities, public transit and tour buses, taxi, parking, etc.

Increase the range of the bicycle by facilitating the transport of bicycles on public transportation vehicles. Consider developing and promoting a special shuttle from West Tisbury to the Gay Head Cliffs.

Analyze the possibility of establishing a major parking/service center at the airport that would include long-term park-and-ride for the ferry, ticket sales, baggage services, parking of rental car fleets, bus connections to key locations and other services offering a seamless experience for visitors. Such a facility could substantially reduce the number of vehicles, especially from Edgartown or Up-Island, which would go to the ferry terminals to pick up or drop off passengers.

Investigate the feasibility of "joint" ticketing and inter-service marketing programs.
Participate actively in the Cape and Islands Passenger Transportation Coordinating Council to establish roles and responsibilities pertaining to development, marketing and financing of enhanced and coordinated public transportation services between Martha's Vineyard and Cape Cod.
Develop ADA compatible design guidelines to integrate pedestrian areas, bikeways and public transportation routes and facilities.

Actions - Transportation Information

Make complete, timely and coordinated regional transportation information available on Internet websites including ferry and bus routes and schedules, the availability of taxis, bicycle route and rental information.
Cooperate with local business associations or other private organizations to distribute transportation information at strategically located visitor centers.

Review and improve Martha's Vineyard publicity material to ensure it clearly explains the Island's transportation environment and prepares residents and visitors to make good transportation choices.
Promote the idea of "Martha's Vineyard – a different way of life" with emphasis on use of transit, courteous driving. Use in advertising, tourist brochures, and flyer in SSA ticket envelopes.
Research the applicability of advisory signage and radio.
Improve the flow of information to the news media.

13. Safety

The transportation system on Martha's Vineyard is relatively free from high numbers of crashes as compared to state and national statistics. However, there are instances of people losing control, not paying attention, and taking sudden unexpected movements that result in potential safety problems. As a result, the Joint Transportation Committee reviews local incidents and weighs safety as its first priority when rating transportation projects. the Partially as a function of the Island's small size and population, transportation-related mishaps are rare. That said, the Island's summertime mix of many modes in a small space creates congestion that can result in unsafe conditions.

Federal rules (23 CFR 450.306[h]) mandate that the RTP should be consistent with the Strategic Highway Safety Plan (SHSP), as discussed in 23 U.S.C. 148. The Massachusetts SHSP presents safety-related data, identifies safety problems, and develops of strategies to reduce crashes. This RTP recognizes the potential for the SHSP use in the Martha's Vineyard Region, with the goal of reducing crashes on the island. The SHSP focuses on six main "emphasis areas":

- Data Systems (using information to identify problem areas and drivers),
- Infrastructure (increasing the safety of problem areas through design),
- At-Risk Behavior (combating speeding, impaired driving, etc.),
- Higher-Risk Transportation System Users (working with young drivers, older drivers, pedestrians, cyclist, and motorcyclists),
- Public Education and Media (increasing public awareness of problems),
- Safety Program Management (developing effective processes for safety).

While the Island remains generally safe for travelers of all types, there are areas in the transportation system and facilities where improvements can be made to enhance safety. And every effort will be made to identify and improve the safety of the system and the system's infrastructure.

Safety on Water and in the Air

The Steamship Authority, the Coast Guard, and the harbormasters of the various towns have responsibility for boating safety on the Vineyard. While recreational boating mishaps do occur, the safety record of the Steamship Authority is exemplary. The Martha's Vineyard Airport (MVY) also boasts a clean safety record (6 incidents are listed in the National Transportation Safety Board database since 1995, four of which were fatal). The parties responsible for water and air constantly strive to increase safety.

Vehicular Safety

According to MassDOT records, from 2010 to 2012, the Island experienced a total of 520 crashes, an average of 173 per year. As a whole over the three year period, there were 142 non-fatal injury crashes, ___ non-injury crashes that involved property damage only, or where the crash severity was unknown or just not reported, and __ fatalities from vehicle crashes. The state's data includes local reported crashes and State Police reported crashes from which MassDOT was

able to determine a specific geographic location. Not all crash locations could be identified due to the lack of crash reporting by local towns to the state, or, the reported crash information may not be sufficient to geo-code the location.

From the local information that the state geo-coded, there are several Island roads and intersections that appear to have more severe accidents than others. The most dangerous intersections on Martha's Vineyard. Intersections are listed based on their Equivalent Property Damage Only (EPDO) index. The EPDO is a system of ranking intersections based on the severity of the crashes. It gives greater significance to crashes where injuries and fatalities occurred. Points are applied to each crash in the following manner: one point, for a crash involving property damage only; five points for a crash involving an injury; and ten points for a crash in which a fatality occurred. The intent of this ranking system is to determine the locations where crashes have the most severe consequences. Thus, an intersection with a fewer numbers of accidents can be ranked higher (more dangerous) than other intersections with more but less severe accidents.

- LIST OF MV CRASHES AND HIGH CRASH LOCATIONS TO BE INSERTED

Transit Safety

The Martha's Vineyard Transit Authority has an exemplary safety record, averaging less than one incident (e.g., quick stop, collision) requiring medical attention per year. Drivers undergo rigorous training to prevent such occurrences.

Pedestrian and Bicycle Safety

Owing to the Island's small size and recreational nature, walking and biking are popular and effective modes of transportation. In the busy summer season, the Vineyard sees these modes mixing, generally without serious mishap, though hospital data indicate that over 100 cyclists seek medical attention at the Martha's Vineyard Hospital each year.

The Joint Transportation Committee has identified a large number of projects that will increase the safety and convenience of these modes, by improving amenities for cyclists and pedestrians:

- Complete Herring Creek Road SUP (completed 2009);
- Resurface State Road between Oak Bluffs and drawbridge, narrowing travel lane width and increasing shoulder width on both sides. (completed 2007);
- Improve pedestrian and cyclist circulation along Lake Street and Oak Bluffs Avenue (completed 2010);
- Improve circulation patterns and provide pedestrian amenities in the North Bluff area (completed 2009);
- Reorient the Vineyard Haven Stop & Shop parking lot and create dedicated pedestrian ways (completed 2007);

- Improve the SUP through the Hospital site and improve the existing segment along Eastville Avenue (MV Hospital portion completed 2010);
- Create a SUP along the eastern and northeastern perimeter of the Manuel Correllus State Forest (Edgartown) to complete the perimeter loop of the Forest;
- Create a short SUP segment connecting the northeast corner of State Forest to the Edgartown-Vineyard Haven Road SUP (Oak Bluffs);
- Create a continuous SUP from the drawbridge to Sunset Lake (Oak Bluffs);
- Realign portions of County Road to provide buffer space between the road and the existing shared-use path (Oak Bluffs);
- Redo sidewalks between Upper and Lower Main Street (Edgartown);
- Ensure that town codes and MVC development review promote walking and bicycling access to adjacent neighborhoods and to public roads;
- Develop an educational campaign informing people of the rules of the road and safety measures;
- Post "Share the Road" signs including in areas where there are SUPs adjacent to the road;
- Conduct an inventory of road, SUP, and sidewalk signs with the intent of minimizing clutter and providing clear information;
- Evaluate road speed limits for appropriateness and propose measures for traffic calming;
- Set up a bicycle-path working group with the mandate to analyze the present network of cycle paths with respect to safety and convenience (especially for the novice riders), and prepare a program for upgrading them. Look particularly at the following:
- The design of intersections with roads and driveways including the presence of stop or warning signs, the lines of sight, and the presence of vegetation and debris;
- The presence of barriers (with low shrubs or with low wooden barriers) dividing the paths from adjacent roadways to protect cyclists by preventing use of paths for parking of cars and heavy equipment or use as an unofficial passing lane or turning lane, as well as to reduce the visual scale of the roadway;
- The presence of signage too close to the paths that narrow the effective width;
- The identification of dangerous stretches of bicycle path (e.g., the Eastville Avenue path is problematic);
- Paint centerlines on SUPs.
- Ensure that appropriate bicycle accommodations (e.g., paths or easements, parking areas) are included in new projects through the town or MVC project review process;
- Set up a campaign in schools and for the general public promoting bike safety and the idea of drivers sharing the road;
- Address bicycle safety and access in the planning, design, construction, operation and maintenance of transit, airport, highway and bridge projects;
- Developing other new SUP links (see in section 17);
- Continue to work with schools to identify "Safe Routes to School" and improvements that may be necessary;
- Encourage walkers by increasing the appeal of the pedestrian environment, particularly in village and commercial areas, by providing continuous and adequately-dimensioned sidewalks and well-marked crosswalks as well as services such as shelter and weather

protection, comfortable places to sit, signage, information centers, water, restrooms, plantings, lighting and trash receptacles;

- Create and upgrade walking routes – including off-street, low-maintenance footpaths – connecting residences, parks, workplaces, tourist and shopping attractions and public transit stops.

14. Security

The Department of Homeland Security requires that the RTP be consistent with the Regional Transit Security Strategy. Beyond that, there is a recognized need for heightened awareness and security measures for all venues in which large numbers of persons assemble. These include transportation modes, such as aircraft, passenger vessels, and terminals.

Martha's Vineyard's transportation system contains few areas or structures where security is necessary or feasible, but throughout the system, efforts will be made to identify and rectify flaws in security. In particular, the Steamship Authority, the Martha's Vineyard Regional Transit Authority, and Martha's Vineyard Airport are three entities that must particularly be aware of security issues.

Steamship Authority

The Steamship Authority has made the following changes to its operations in compliance with the Maritime Transportation Security Act of 2002:

- Only baggage accompanied by a ticketed passenger will be permitted on the luggage carts.
- Access of personnel other than ticketed passengers will be limited to those possessing official Steamship Authority identification.
- Walk-on passengers will be closely monitored by Steamship Authority personnel and, when appropriate, law enforcement authorities.
- Random confirmation of passenger identification will be employed and random screening of passengers and their belongings may also be conducted.
- Once boarded, passengers will not be permitted to disembark until the vessel has reached its destination.
- Because of the time requirements associated with security measures, vehicles must arrive at least thirty minutes prior to scheduled departure.
- Only vehicles properly screened by terminal personnel will board.

Martha's Vineyard Airport

Martha's Vineyard airport does not make its security plan public, but has implemented procedures in cooperation with the Department of Homeland Security's Transportation Security Administration and the Federal Aviation Administration.

Martha's Vineyard Regional Transit Authority

The VTA requires all of its drivers to complete the National Transit Institute's security training course, System Security and Awareness for Transit Employees. According to NTI materials, the "course covers skill sets for observing, determining, and reporting activities, packages and substances that are suspicious or out-of-place. It encourages employees to use common sense when faced with various circumstances so operations can run safely, smoothly, and efficiently. A focus is also placed upon an employee's initial priorities at the scene of a threat or incident."

The VTA also participates in the Massachusetts State Transit Security Awareness Program, known as Transit Watch, which encourages passengers to be alert, prepared, and informed about threats to public safety aboard transit.

Both the VTA and the Steamship Authority would provide major assistance in the event of a natural disaster, critical incident, or terrorist attack. In addition to enhancing mobility in a time of crisis, the knowledge of these organizations targets the following goals:

Enhance regional ability to assess risk and prevent future terrorist attacks or critical incidents;

Improve regional ability to collect, analyze, disseminate and manage key information;

Improve the region's preparedness by enhancing coordination among all public safety officials;

Improve the ability of first responders to communicate at the scene of a terrorist attack or critical incident in the region;

Improve the region's ability to recover from a terrorist attack or other critical incident.

15. Environmental Considerations

15.1 Environmental

As a relatively small island with a sensitive ecological and coastal environment, Martha's Vineyard faces unique environmental issues. Fortunately, the ability of the six Island towns to confront these issues on a local level is strengthened with the existence of the Martha's Vineyard Commission (MVC). As the Island's Regional Planning Agency, the MVC works closely with the six Vineyard towns, the Wampanoag Tribe of Gay Head (Aquinnah), the Natural Heritage & Endangered Species Program (NHESP, part of the Massachusetts Division of Fisheries and Wildlife), the Massachusetts Historical Commission, local conservation commissions, and all other agencies that can help fulfill its mission to protect the unique "natural, historical, ecological, scientific, [and] cultural" qualities of the Vineyard.

MassDOT issued the GreenDOT Policy Directive in 2010, with the mutually reinforcing three-fold goals of reducing greenhouse gas emissions, promoting alternatives modes of transportation, and supporting smart growth. The Vineyard's Joint Transportation Committee, comprised of representatives from the towns, County, Wampanoag Tribe, VTA, and MVC have focused on strategies that align with these statewide goals, particularly ways to mitigate environmental damage and preserve the unique Island character, as opposed to increasing transportation infrastructure to meet a perceived demand.

The policies, projected activities, and proposed projects are consistent with protecting and enhancing the environment. They are a product of the MVC and JTC's dedication to environmental quality of the Island in general, and were developed in consultation with appropriate federal, tribal, and state wildlife, land-management, and regulatory agencies. This discussion of the relation between the transportation planning efforts and environmental concerns conforms to federal regulations (23 USC 143 [I][2][B]).

The objectives listed in section 5.2 of this of this MVTP clearly include a primary focus on protecting the environment. The overall goal is for a transportation system that "is consistent with the Vineyard's scenic, historic, and natural resources." Several of the specific objectives also reinforce the commitment to environmental quality, namely:

- Reduce dependence on private automobiles by promoting alternate modes of travel;
- Ensure that the road network is designed and managed to minimize congestion, pollution… and to preserve scenic roadside views and the character of rural roads;
- Minimize transportation-related pollution, promote energy conservation and sustainability, and support preservation of natural resources;
- Coordinate regional land-use and transportation policies, favoring land-use decisions that reinforce the other objectives such as: Consolidation of mixed-use, pedestrian-friendly village areas within the limits of already developed areas, where daily needs can be met without a car; Outside village areas, development within walking distance of bus stops, and encouragement of convenience stores to reduce the need for routine trips.

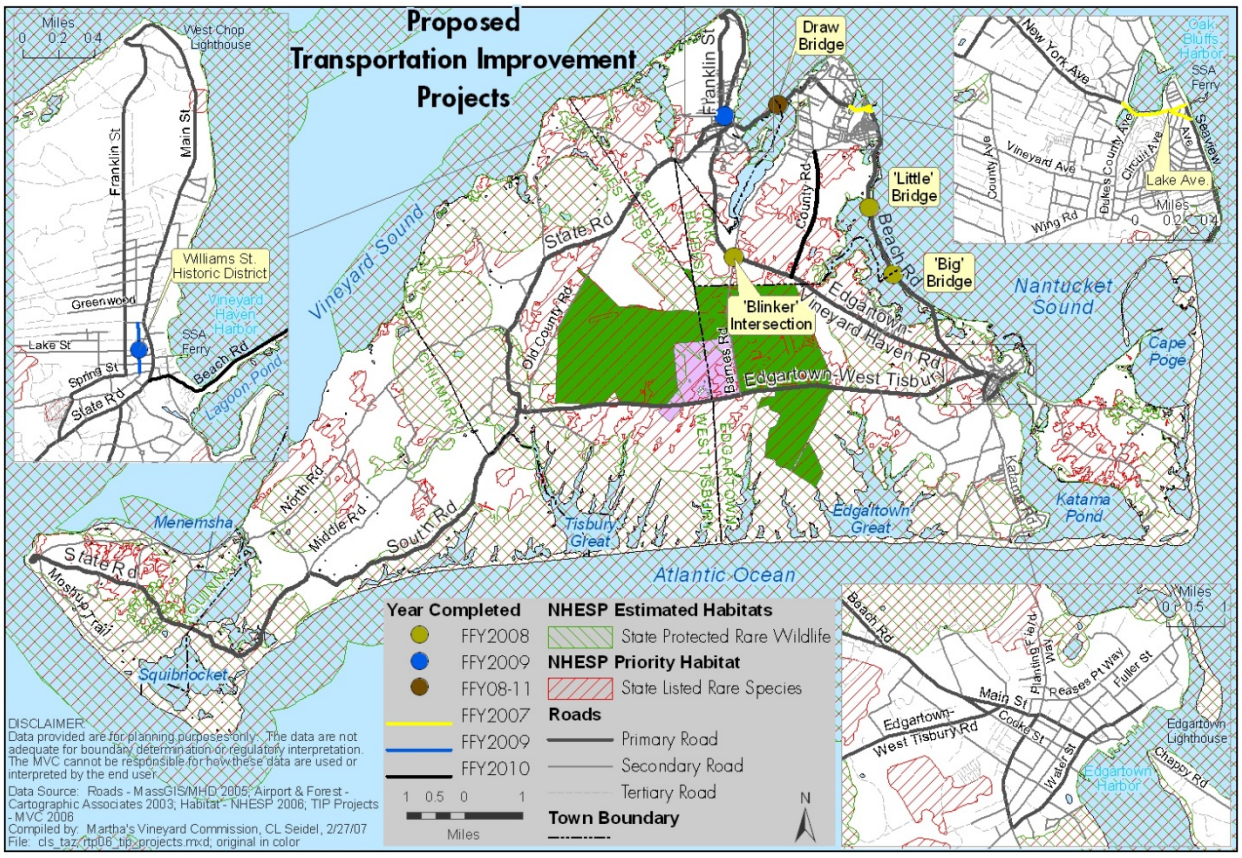
The MVTP places an emphasis on protecting the environment in the context of a holistic approach to allow mobility while maintaining the Vineyard's unique resources. Since traffic congestion is a seasonal problem and the traditional tactics to reduce congestion are antithetical to the Island's character and economic well-being, alternative ways of dealing with the problem must be explored.

Environmental Mitigation

The Massachusetts Natural Heritage & Endangered Species Program (NHESP), part of the Massachusetts Division of Fisheries and Wildlife, is responsible for the conservation and protection of hundreds of species, including approximately 178 species of vertebrate and invertebrate animals and 264 species of native plants that are officially listed as Endangered, Threatened, or of Special Concern in Massachusetts.

The list of Proposed and Possible Future TIP Projects listed in section 17.2 is mainly made up of projects that reduce traffic congestion and increase safety without physically increasing the road network. The projects include reconfigured (but not enlarged) intersections, multiple new SUPs, improvements to existing SUPs, new walkways, sidewalk improvements, and new bus stops. The one exception is the proposal to build the Tisbury Connector Roads, intended both to relieve a safety and congestion concern at a busy intersection and to promote infill development in an area adjacent to a town center.

The location of the priority TIP projects strategies in shown in Figure XX, which shows that most of them lie outside MHESP Estimated Habitat and Priority Habitat. For the relatively few projects located within critical habitat areas, particular attention will have to be paid to ensure that there are no detrimental impacts on habitat or other natural resources.



Consultation with Stakeholder Groups

While the Joint Transportation Committee feels as a matter of course that it is their responsibility to protect the environment from threats due to transportation, it is important when producing a document such as the Regional Transportation Plan to include the perspectives of the environmental community as a whole.

Consultation on environmental mitigation for this and earlier version of the RTP, and aspects therein, were conducted with the US Army Corps of Engineers, Massachusetts Department of Environmental Protection, National Marine Fisheries Service, the US Environmental Protection Agency, and the Massachusetts Office of Coastal Zone Management.

Consultations with local environmental advocates and decision-makers to discuss the RTP included an open house on the previous version of the regional transportation to provide input into the draft version of the 2010 and 2015 versions of the plan, and a public meeting to input into the 2015 plan. Groups involved include: the conservation commissions from the six towns, the Natural Resource Department of the Wampanoag Tribe of Gay Head (Aquinnah), the Vineyard Conservation Society, the Martha's Vineyard Land Bank Commission, the Conservation Partnership of Martha's Vineyard (an umbrella group for Island conservation groups), the Trustees of Reservations, the Massachusetts Audubon Society, and the Sheriff's Meadow Foundation.

15.2 Context-Sensitive Design – Scenic Roads

It is especially true on Martha's Vineyard that roads have cultural, historic, economic, and aesthetic values. The Island's distinct character and unique sense of place are perceived largely by traveling along Island roads. The preservation of the traditional quality of rural and village roads is critical to residents' and visitors' perception of the Vineyard. It is an important basis of the Island's character, to its environment, and to its visitor-based economy. The Vineyard's unique character justifies special solutions that may or may not be applicable in the rest of the Commonwealth.

In the past forty years, the Martha's Vineyard Commission has worked with towns and MassDOT to preserve the distinct character of the Island's scenic roads and promote more context-sensitive design.

- A 1973 study by renowned urban designer and member of the Martha's Vineyard Commission Kevin Lynch, *"Looking at the Vineyard"*, paints an image of the Island as *"a set of interconnecting journeys"* through diverse landscapes. Roads fitting the land were *"built for rural purposes, and for the most part not drastically modified since then, it is their very narrowness, their shifting alignment and rural detail that constantly remind us that we are in an unusual locality. The passing views of ocean or pond, marsh, moor or pasture delight us."*
- In 1975, the Martha's Vineyard Commission designated the Island Road District, setting limits on the placement and of buildings along the main Island roads and limiting the number of curb cuts. This has effectively prevented the type of roadside strip development so prevalent in other locations.
- Several towns' master plans call for the preservation of scenic roads and trails in order to maintain the rural character of the individual towns.

- Over the years, there has been a resistance to road widening and other road "improvements" associated with road design on the mainland, although standard features, such as standard metal guardrails, have made inroads into the Vineyard landscape. Many recent projects have successfully incorporated features reflective of the Island's distinct character. For example the Joint Transportation Committee, County, towns and Friends of Sengekontacket worked closely with MassDOT to revise the initial design for two replacement bridges on Beach Road between Oak Bluffs and Edgartown (Sengekontacket Pond Inlets) to be more context-sensitive design solutions, incorporating a bicycle path, wood guardrails and sidewalks, a fishing platform, and faux stone abutments. The roundabout at the intersection of the Edgartown – Vineyard Haven and Barnes roads incorporates landscape features especially sensitive to the Vineyard.

- In 2006, the Commonwealth published a new Project Development and Design Guidebook, consistent with the administration's Fix-it-First and Communities First philosophies and the context sensitive design approach. The Fix-It-First policy prioritizes the preservation of existing infrastructure rather than new transportation initiatives. The Guidebook allows for greater flexibility in roadway design as well as increased community involvement and input, particularly in the early planning stages. One aspect of this policy is the Footprint Roads Program that favors road and bridge preservation and reconstruction without changing their dimensions or design, provided the road or bridge does not have a higher accident rate than the average of others of similar design in the Commonwealth.
- In 2009, the MVC adopted the Island Plan, the Vineyard's comprehensive regional plan. It includes a Land Use Guidance Map that delineates the roadside viewshed as a component of the Critical Resource Protection Areas, where development should be avoided or especially carefully monitored. In the latest revision of the DRI Checklist, any development in this area has to be referred for possible review by the MVC. It also includes general guidance for roadway design and other development guidance consistent with the goal of environmental sensitivity.
- The 2010 report by the MVC, Scenic Roads on Martha's Vineyard, took a close look at the Vineyard's visual roadway environment, enumerates qualities that make roads scenic, and looks at measures that can be used to protect existing scenic roads and improve the aesthetics of other roads.
- The MVC considers impacts on scenic roads when it reviews Developments of Regional Impact, with respect to issues such as curb cuts, siting of buildings and parking, and vegetative buffers. In 2012, the MVC adopted a DRI Policy on Site Design and Landscape that deals with some of these issues. The policy could also be used by town boards in their review of roadside development.
- In 2014, the MVC set up the Scenic Roads Initiative, overseen by a committee made up of representatives of the Commission and each Island town. The committee has outlined a work program of how to move ahead to better analyze and protect the Island's scenic roads. It recommends holistic approach that defines Island roads from an experiential point of view, including the corridor (viewshed and vistas as seen from the road), the roadside (areas that immediately front along but outside the public right-of-way including adjacent buildings, entrances, fences, stone walls, roadside vegetation, commercial signage, and non-roadway lighting), and the roadway itself (areas within the public right-of-way including the alignment and geometry of the road, travel lanes, shoulders, drainage, sidewalks, pathways, and roadway lighting and signage). It calls for an inventory of roads on the Island, a categorization and classification of roads based on characteristics and management objectives, and sets of guidelines for preserving, maintaining, and enhancing the character-defining features of designated roads. These would preferably be published in a Martha's Vineyard road design manual.

Measures to help protect and enhance the Inland's scenic roads include the following.

- Avoiding adding lanes to the existing two-lane roads.

- In reconstruction projects, keeping the width of travel lanes and shoulders as narrow as possible given the functional and safety requirements relative to the volumes and speeds of the motorized and non-motorized users.
- Preserving, enhancing, and restoring the historic tree canopies and vegetation along Island roads.
- Mitigating the impact of utility infrastructure on the visual and aesthetic character of the Island without compromising the dependability and security of vital services.
- Minimizing the number of signs on Island roads and ensure that all signs are useful, clear, well-designed, well-located, as small as possible, and in keeping with the character of Martha's Vineyard. Using the distinctive Vineyard design for directional signs.
- Avoiding the use of traffic signals.
- Using roadside barriers compatible with the character of the Vineyard, generally wood barriers that are steel-backed where needed to meet crash-resistance requirements.
- Locating and designing new roadside development in rural areas to minimize its visibility from the road. Locating and designing new roadside development in village and other built-up areas to reinforce the distinct character of that streetscape or roadscape.

The Island's Scenic Roads

This is a preliminary identification of the Island's fifteen most scenic roads, based on a survey carried out in conjunction with this Transportation Plan. This list will likely be revised as a result of the Scenic Roads Initiative planning effort, described above.

1. Middle Road, Chilmark
2. Lamberts Cove Road, West Tisbury
3. Beach Road between Edgartown and Oak Bluffs
4. Moshup Trail, Aquinnah
5. State Road from Beetlebung Corner to Gay Head Cliffs, Chilmark and Aquinnah
6. South Road, Chilmark
7. North Road, Chilmark
8. Tashmoo Overlook, Tisbury
9. West Tisbury Town Center
10. Chappaquiddick Road, Edgartown
11. Quitsa (Clam Cove) Overlook, Chilmark
12. Katama Road, Edgartown
13. Beach Road between the Hospital and Vineyard Haven
14. State Road from Tashmoo Overlook to West Tisbury
15. Edgartown – West Tisbury Road

The Lagoon Pond Drawbridge: An Example of Environmental Considerations and Context-Sensitive Design

An example of how transportation projects on Martha's Vineyard must consider a multiplicity of environmental considerations was the plan to replace the old, wooden-piered Lagoon Pond Drawbridge with a new bridge (see section 8.4). The Lagoon Pond Drawbridge represents one of the largest transportation infrastructure projects undertaken on the Vineyard.

This was a particularly complex project that has involved the design, permitting and construction of two replacement bridges. A temporary bridge opened in 2010 to address the immediate threat of the old bridge failing while a permanent structure coursed through the multi-year permitting process.

The MVC and towns of Oak Bluffs and Tisbury set up a Lagoon Pond Drawbridge Committee to coordinate Island involvement and speak as a single voice in dealing with MassDOT. The committee includes representatives from the Martha's Vineyard Commission, the Towns of Tisbury and Oak Bluffs (including DPW, harbormaster, shellfish warden), Dukes County, Tisbury Harbor Management Committee, and Tisbury Waterways Incorporated (a non-profit organization that advocates on water-quality issues).This has been very effective in allowing for a smooth process involving a very large number of actors.

The Committee has consulted with members of the public, town conservation commissions, planning boards, boaters, and business interests. MassDOT and/or the Drawbridge Committee has also held formal consultations and/or worked with the US Coast Guard, the US Army Corps of Engineers, the Massachusetts Department of Environmental Protection, the Massachusetts Division of Fish and Wildlife, the National Marine Fisheries Service, the US Environmental Protection Agency, and the Massachusetts Office of Coastal Zone Management.

The final design incorporated a number of positive features including observation areas, a mini-park, and a network of pedestrian paths passing under the bridge linking nearby public open spaces. The drawbridge project shows the Martha's Vineyard MPO's commitment to consult fully with all stakeholders and agencies, not merely to satisfy regulations, but to make the best decisions on environmental issues, broadly defined.

16. Climate Change

16.1 The Impact of Climate Change on Martha's Vineyard

World-wide climate change, the warming of the earth over a long period of time, is clearly documented to be accelerating and man-made, according to the Fifth Climate Assessment Report published in 2013 by the International Panel on Climate Change (a scientific intergovernmental body working under the auspices of the United Nations).

According to the Federal Highway Administration:

> *There is general scientific consensus that the earth is experiencing a long-term warming trend and that human-induced increases in atmospheric greenhouse gases (GHGs) are the predominant cause. The combustion of fossil fuels is by far the biggest source of GHG emissions. In the United States, transportation is the largest source of GHG emissions, after electricity generation. Within the transportation sector, cars and trucks account for a majority of emissions.*
>
> *"Opportunities to reduce GHG emissions from transportation include switching to alternative fuels, using more fuel efficient vehicles, and reducing the total number of miles driven. Each of these options requires a mixture of public and private sector involvement. Transportation planning activities, which influence how transportation systems are built and operated, can contribute to these strategies.*
>
> *"In addition to contributing to climate change, transportation will likely also be affected by climate change. Transportation infrastructure is vulnerable to predicted changes in sea levels and increases in severe weather and extreme high temperatures. Long-term transportation planning will need to respond to these threats.*

As an island in the Atlantic Ocean, Martha's Vineyard is on the front lines of climate change. Sea-level rise as well as more frequent and severe weather events already have a tremendous impact on our community and anticipated climate change will compound these impacts.

Annual carbon dioxide emissions attributable to the Vineyard were 329,000 tons in 2003 and will rise to 457,000 tons by 2050 if we take no new action. The Vineyard consumes a disproportionally high amount of energy because of the nature of our buildings and settlement pattern. It costs a lot more to heat a single-family dwelling with four exposed walls and a roof, than an apartment that loses heat only through one exterior wall. And our low-density housing, spread across the Island, means that we have a much higher proportion of people who drive compared to an inner-city neighborhood where people can more easily walk, bike, and take transit.

The Commonwealth's *Massachusetts Climate Change Adaptation Report* projects the following impacts over the course of the rest of the 21st century.

- Massachusetts is set to experience a 5° to 10°F increase in average ambient temperature. Days with temperatures greater than 90°F are predicted to increase from the current 5 to 20 days annually to between 30 to 60 days annually. Up to 28 days annually are predicted to reach above 100°F compared to up to 2 days annually today. The higher incidence of extreme heat days, will have a negative impact on air quality and human health.
- Sea surface temperatures are predicted to increase by 8°F.
- Winter precipitation—mostly in the form of rain—is expected to increase by 12 to 30 percent.
- Sea level rise, resulting from the fact that land in Massachusetts is naturally subsiding along with the projected thermal expansion of the oceans, the melting of ice on land (such as Greenland) and the collapse of the West Antarctic Ice Sheet, could reach six feet. Since a large percentage of the state's population, development, and infrastructure is located along the coast, the impact of this change will be significant, putting the Massachusetts economy, health, natural resources, and way of life at risk.
- Floods from high intensity precipitation events are predicted to occur with greater intensity and frequency, resulting in severe and cumulative damage that strain local and state resources and the ability of government agencies to adequately respond.

Much of the Vineyard's activities and economy are focused on the coastline and are therefore particularly vulnerable to change. The two impacts of climate change most likely to affect transportation on Martha's Vineyard are sea-level rise and anticipated changes to rainfall and stormwater management.

Sea-Level Rise

Sea level has been rising in our area since the retreat of continental glaciation some 20,000 years ago when the mile-thick ice mass, which also formed the hills and plains of Martha's Vineyard, melted. In the past century, the dramatic escalation in air and water temperature due to climate change has brought about greatly accelerated sea level rise. The average worldwide sea level has risen about 8 inches since 1880. Historic sea level monitoring data from Woods Hole since 1932 indicates sea-level rise of 2.8 mm per year and from Nantucket since 1965 indicates a rise of 3.5 mm per year (65% and 76% respectively more than the world-wide trend).

Worldwide sea level rise is expected to not only continue but to accelerate because of:

- Expansion of the ocean waters due to rising temperatures,
- Melting of ice, notably glaciers and possibly the Western Antarctic and the Greenland ice sheets,
- Changes in ocean currents, notably the Gulf Stream that would especially affect the U.S. Northeast.

According to the IPCC, the average sea level is projected to rise between 12 and 48 inches by 2050 and 12 and 72 inches by 2100. To this worldwide rise is the relative impact of subsidence in those parts of the world, such as Martha's Vineyard, which are cooler and are sinking deeper

into the Earth's crust. Some scientists argue that even these estimates are low because they don't sufficiently account for the increase in water temperature and the resulting expansion of the ocean.

On Martha's Vineyard, the effects of sea-level rise are exacerbated by the effects of coastline change. In some areas, the coastline has been eroding by as much as ten feet per year; this rate could increase when coupled with sea-level rise.

It is difficult to predict the speed at which sea level will rise and what the impacts will be in a given location, especially during storm conditions. Currently, mapping generally uses a so-called "bathtub model" that gives a rough portrait of potential impacts assuming a simple rise in sea level with all other factors remaining the same. It would be desirable in the future to use a sophisticated multi-factor model to better predict the likely impacts by combining the impacts of sea-level rise with the other factors causing coastal erosion, as well as the shape and geology of the affected land areas. To adequately address vulnerability, the impacts of coastal flooding (as from a Nor'easter) and storm surge (from a hurricane) should also be modeled.

The rising sea levels are projected to affect many of the roads along the coast and ponds. Our three major downtown areas are also highly vulnerable to rising in sea levels because of their proximity of the ocean and the low elevation. Some roads are critical facilities due to emergency access in case of events such as hurricanes. The MVC is in the process of preparing maps that show the roads that will be affected by sea-level rise over time. Strategies for roads include abandonment, elevation, or relocation, none of which promises to be an easy fix at any of the vulnerable locations. It is important to open up the dialog regarding the outcomes for some of these roads without good long-term prognoses.

Rainfall and Stormwater Management

Climate change is bringing about a change in precipitation patterns, notably more short-term droughts punctuated by more frequent heavy downpours, quite a change from the gentle summer rains that Vineyarders are used to. Much of the additional heavy rainfall is expected to occur during the winter, presenting further difficulties regarding drainage over frozen ground.

The highest priority strategy identified in the Hazard Mitigation Plan for Dukes County is to implement regulations and capital programs to build stormwater facilities one size larger, namely for a 25-year rather than a 10-year storm.

Dealing with Climate Change

The challenge of climate change must be dealt with in two ways.

- Mitigation: First, as discussed in section 16.2, we should do our share in reducing the extent to which the Vineyard contributes to causing climate change. Martha's Vineyard can join other communities in the country and around the world to limit the acceleration of climate change by reducing the use of fossil fuels that produce greenhouse gases (as discussed in the Energy section of this website). However, we are too small to have a significant impact on the course of worldwide global warming, which now appears to be inevitable.

- Adaptation: Secondly, as discussed in section 16.3, we should prepare to deal with the inevitable impacts of climate change. The likely consequences of dramatic climate change on the Vineyard are so great that, although there is some uncertainty about the amount and rate, it would be wise to exercise caution by preparing to adapt to significant climate change. That is why the MVC's efforts and this section of the website are focused on climate change adaptation.

16.2 Mitigating the Contribution of Transportation to Climate Change

Climate mitigation is any action taken to permanently eliminate or reduce the long-term risk and hazards of climate change to human life, property. The International Panel on Climate Change (IPCC) defines mitigation as: "An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases."

Commonwealth Efforts: On a statewide level, Massachusetts has recognized the importance of climate change generally, and to the transportation sector in particular. In 2008 the Commonwealth passed the Global Warming Solutions Act, which requires the state economy to reduce 1990 levels of GHG emissions by 10% to 25% by 2020, and by 80% by 2050.

To guide this process, the state has developed a draft Climate Implementation Plan: A Framework for Meeting the 2020 and 2050 Goals of the Global Warming Solutions Act. The Plan notes that cost-saving measures exist that will both reduce GHG emissions and costs (such as increasing fuel economy in cars), and that other measures have a low net cost. The Plan also identifies Transportation as one of three "major areas of opportunity."

Statewide policies that can capture cost-effective measures include implementing California's GHG emission standards for new vehicles, and "prioritizing transportation projects that preserve the existing transportation system, support denser 'smart growth' development, and promote increased public transit ridership, walking and bicycling."

Vineyard Efforts

A key way that Martha's Vineyard can lessen its contribution to global warming is by reducing its use of fossil fuels. There are other environmental impacts affecting the Vineyard besides sea level rise and increasing severity of storms. It is especially important that Martha's Vineyard have an affordable, environmentally sound, reliable, and safe supply of renewable energy.

- Other Environmental Consequences of Fossil Fuels: Burning fossil fuels results in air and water pollution that is changing the natural environment and endangering public health. The Cape and Islands already experience among the poorest summer air quality in Massachusetts.
- Reliability of Supply: Because the Vineyard depends almost entirely on imported energy, we face increased risks, higher costs and concerns about interruption of supply. Fuel shipped by ferry or barge exposes the island to hazards and accidents. The depletion of fossil fuel sources worldwide increase the potential of supply shortages and price

fluctuations beyond our control. Transmitting electricity by underwater cables and overhead wires exposes us to periodic interruptions.

- Economic Impacts: Energy costs on the Vineyard are very high and contribute substantially to our higher cost of living. Island gasoline prices are among the highest in the nation. Both the Vineyard's year-round community and visitor-based economy are particularly sensitive to high energy costs. Most of the energy dollars spent on-Island do not benefit our local economy: they do not get spent on local goods nor expand business opportunities.

The *Island Plan* addresses many aspects of climate change and the efforts already underway or needed in the future to deal with this challenge. These include general efforts to better plan development and to reduce usage of fossil fuels with energy efficiency and renewable energy generation, as well as specific strategies related to transportation, namely promoting alternate modes and the use of low-fossil-fuel vehicles.

- Smart Growth: The *Island Plan* proposes to a number of strategies to reduce the rate of development and to favor growth patterns that are more sustainable than suburban sprawl. As a primarily rural community, opportunities for dense "smart growth" development on Martha's Vineyard are limited, though some infill development is possible. The Island Plan section on Development and Growth lists strategies such as "Limit significant new development in outlying areas," and "Restore and improve areas that were developed in problematic ways in the past," as part of the overall objective to "Preserve and reinforce the traditional settlement pattern of the Island."
- Energy Efficiency and Renewable Energy Generation: The Island Plan includes a section on energy that outlines how the Island could become energy self-sufficient through a combination of aggressive conservation and efficiency measures together with a number of ways of generating renewable energy, largely by taking advantage of the areas considerable wind energy resources.
- Alternative Modes of Transportation: Given the constraints of our relatively small community, an important effort the Vineyard can make to reduce GHG emissions is to promote alternative transportation modes in order to reduce the amount of fossil fuels used in motorized transportation. Sections 8 (Buses and Taxis) and 9 (Pedestrian and Bicycle) of the Regional Transportation Plan detail the extensive efforts that the Vineyard community is taking to increase use of transit, walking, and cycling. These efforts are important to the Island, not simply in recognition of the threats of climate change, but to reduce congestion (also important to reducing GHGs), and to eliminate the need for "inappropriate" transportation infrastructure on an Island that values highly its small-town character.
- Use of Energy-Efficient Vehicles: It is important to reduce the use of fossil fuels in the motorized transportation that does take place. We have choices in the size of our vehicles and, increasingly, the fuels to power them. Choosing fuel-efficient vehicles could significantly reduce the amount of petroleum-based fuels we consume and the related damages to the air quality and public health. With fuel efficiencies double or more than

today's average vehicle, hybrids and other efficient vehicles – such as soon to be available plug-in hybrids and all-electric vehicles – offer the easiest solutions to reducing our fossil fuels used in transportation.

The Vineyard holds particular promise for alternative-powered automobiles. Some concerns about these vehicles – such as the duration of battery charges between charging stations, the inability to accelerate rapidly, and the reduced collision resistance of lighter vehicles – are less problematic here, since Island trip distances are relatively short and there are no speed limits over 45 mph. The Vineyard could be the ideal location for a prototype installation of innovative vehicles, for the reasons mentioned above, and because only a small number of prototype fueling stations would be needed to service a fleet of experimental cars kept permanently on-Island.

In the long term, replacing the use of combustion engines with other available technologies such as electric motors, hydrogen-powered fuel cells or vehicles designed to store power for the Island, in combination with locally generated energy from renewable sources, will allow us to work towards the goal of zero emissions for the Island's transportation sector.

Hybrid cars go twice as far on a gallon of gas as the typical car on the road, so if we all switched to hybrid vehicles, we'd reduce gasoline consumption in automobiles by 50%. If, in a decade from now, we all drive the plug-in hybrids that will then be available, we'd reduce gas consumption by 75%. Measures to encourage use of fuel-efficient vehicles include having towns and other public agencies buy them, and/or requiring that taxis and a proportion of car rentals be fuel-efficient.

Individuals could be encouraged to make their next car a hybrid or other fuel-efficient vehicle with an information campaign, and with incentives such as priority ferry reservations and better parking spaces.

16.3 Adapting to Climate Change

Climate Adaptation refers to the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damage, to take advantage of opportunities, or to cope with the consequences.

Notwithstanding the efforts that the Vineyard might make to reduce its contribution to climate change, it is now clear that climate change will continue for the foreseeable future. The specters of rising sea levels and increase severe weather make planning for climate change critical on Martha's Vineyard. With several roads, public facilities, and downtown areas in low-lying areas, a modest sea-level rise could effectively cripple the Island's transportation systems, economy, and community as a whole.

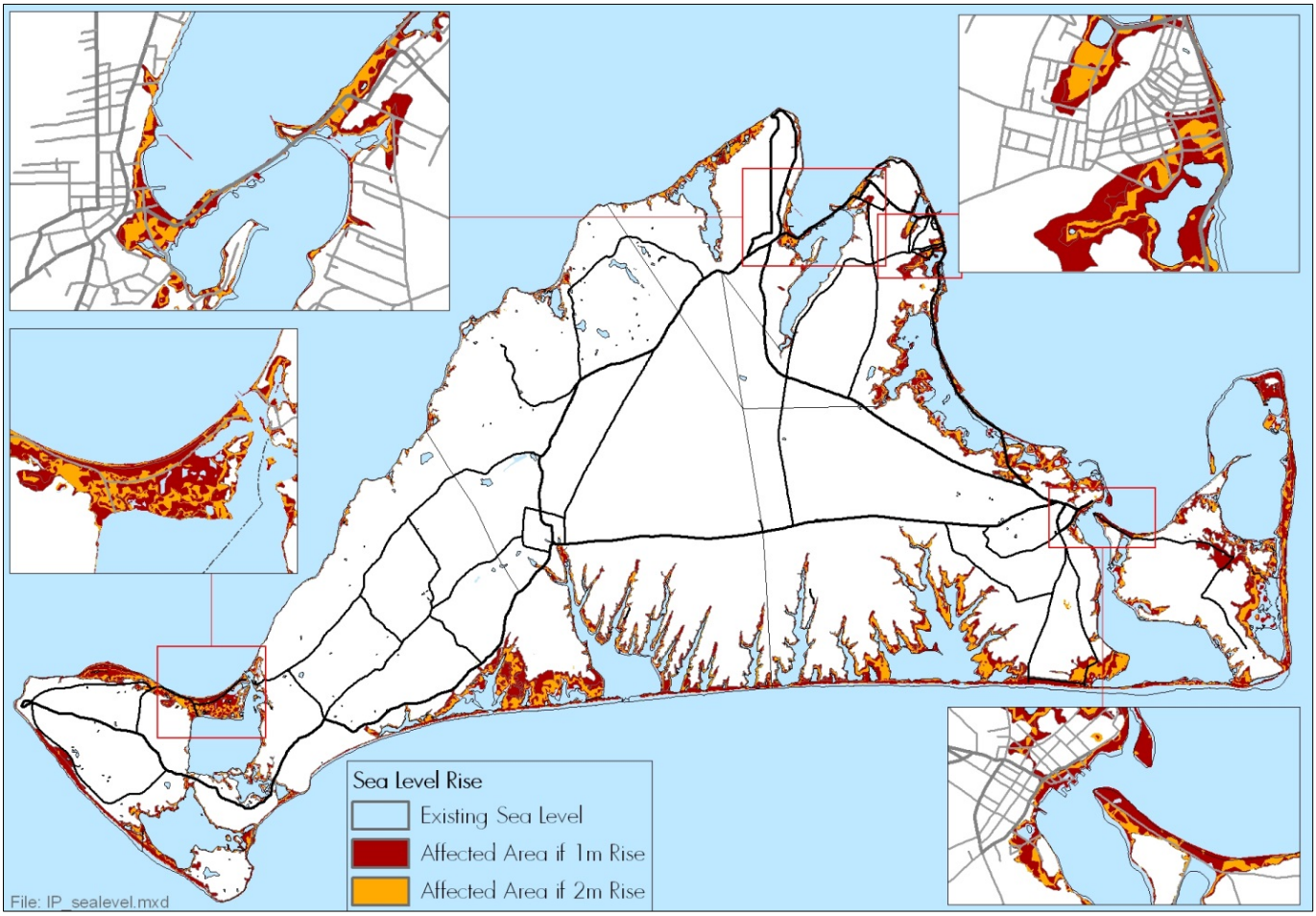


Figure XX shows the effects of a sea-level rise of one and two meters on the Island, and especially on transportation infrastructure. Though greater than the IPCC projections, they represent conservative planning estimates of what we might be facing.

The Vineyard is starting to deal with this challenge, but still has a long way to go.

- Martha's Vineyard Hazard Mitigation Plan: The Martha's Vineyard Commission, in cooperation with the six Island towns and the County, has prepared a Hazard Mitigation Plan for the Island. It identified critical facilities susceptible to natural disasters, most of which are likely to worsen as a result of climate change, and outlined proposed mitigation strategies to lessen the negative effects of these impacts. The 2015 version of this plan includes the proposed impacts on the Island's road network. The draft version of this plan has been submitted to FEMA and is awaiting its approval version. Once approved, it makes towns eligible for federal funding for mitigation projects.
- Land Use and Development Projects: There have been some efforts to address climate change with respect to land use and development. Current requirements for construction in low-lying areas, as identified in the latest federal flood insurance maps, require that the ground level of buildings be higher than in previous versions. However, this is still based on historical information and does not account for climate change.

In its review of Developments of Regional Impact, the Martha's Vineyard Commission often asks applicants to address the potential impacts of climate change. For example, it asked the Martha's Vineyard Hospital to carry out a study of the possible impacts of climate change, and the project's design was modified as a result. Part of this study was to ensure that there would continue to be vehicular access to the Hospital even if a storm surge made some of the access roads impassable.

- Transportation Improvement Projects and Climate Change: Figure XX shows some of the potential impacts of climate change on the Island's transportation infrastructure. Martha's Vineyard will have to take steps to address the possible future effects of rising sea-levels, coastline change, and greater storm surges.

  Several of the Island's main roads are located where they could be subject to the impacts of sea-level rise, coastline change, and more severe storms, notably:
  - Beach Road connecting Edgartown, Oak Bluffs, and Tisbury town centers,
  - Five Corners and Water Street in Tisbury,
  - West Chop Drive in Oak Bluffs.

  Obviously, the ferry terminals are located on the coast and will be impacted by sea-level rise. Their design already accommodates normal variation in sea level, but will be put to the test with sea-level rise. However, the impact on the access roads will be especially problematic.

  The Lagoon Pond Drawbridge Committee had strongly encouraged MassDOT to carry out a climate change study related to the design of the permanent Lagoon Pond drawbridge, but this was not done. It would appear that the impacts will be limited in that it is located in an area where there is relatively little coastline change. It seems likely that the main impact will be that the clearance for boats passing under the bridge, which is being increased by a couple of feet with the new design, will revert back to the previous situation. However, the access roads (Beach Road) might have to be raised in the future.

  The MVC has recommended to MassDOT and the Town of Tisbury that in the design of the Beach Road improvements, every effort should be made to deal with potential flooding as a result of sea-level rise, by:
    - raising the road level as much as possible, recognizing that it is constrained by the proximity of adjacent uses,
    - by oversizing the stormwater drainage system and installing one-way flow protectors.

  Any significant proposed transportation improvement projects located in areas at risk should study the potential impacts of climate change upon the project area before advancing very far on design and engineering, and should consider measures such as those proposed for Beach Road.

17. Financial Information and Recommended Projects

17.1 Financial Analysis and Constraints

This section estimates revenues from existing and available sources, along with proposed expenditures by project on the highway side, and for transit operations, maintenance and capital improvements.

This includes a forecast of federal and state spending through 2040, taking existing state and federal legislation into account, and demonstrates that the estimated cost of constructing, maintaining, and operating all components of the Martha's Vineyard transportation system - all existing and proposed highway and transit projects recommended in the Martha's Vineyard Transportation Plan 2015-240 (MVTP 2015-2040) are matched by estimated available funds.

As federal and state investments in highway and transit operations/maintenance and improvements are provided by the Federal Highway Administration and Federal Transit Administration, the MVTP is required to be financially constrained under Title 23 CFR Section 450.322 and 310 CMR 60.03(9).It should be noted that federal transportation legislation and its main funding source, the Highway Trust Fund, and are under discussion in the United States Congress and its various committees (summer 2015). This may impact the financial estimates and/or timing of implementation, with a new framework for either funding or implementation guidance.

The **MVTP** funds are estimated for the years through 2040 for **federal aid eligible** roadways, multimodal projects, bicycle and pedestrian facilities, bridges, and a substantial portion of the **Martha's Vineyard Transit Authority (VTA)** maintenance, operation, and capital needs.

Capital improvements and ongoing maintenance are funded and carried out in the following ways:

- State roads and bridges: Improvements to State road and bridge projects, including associated sidewalks and bicycle paths, are planned and implemented by MassDOT, which remains responsible for maintenance.
- Local Federal-Aid Roads: Some other roads – namely Island roads classified as arterials and collectors – are the responsibility of the towns but the cost of improvements of these "federal-aid roads" are eligible for federal and state funding under the Transportation Improvement Program, which is updated every year by the Committee of Signatories (MPO), based on the recommendations of the Joint Transportation Committee. Certain other "enhancement" projects such as bicycle paths and inter-modal facilities may also receive federal funding through a special approval process. The towns remain responsible for ongoing maintenance of these facilities.

- Other Local Roads: The responsibility for implementing and financing improvements and maintenance to local roads, sidewalks, bicycle paths, and other facilities lies with the towns, with state aid Chapter 90 funding allowing for some design and improvements. In addition to property taxes, other possible sources for local improvements and maintenance include might include the ferry surcharge, car rental surcharges, and development impact fees.
- VTA does receive state funds for operations and applies for grants through the state to fund capital buses and other equipment or facilities.

The Martha's Vineyard Transit Authority (VTA) does not receive 5307 Urban Formula funds and therefore relies on 5311 Rural Grant operating funds as the sole source of federal operating funding. The 5311 funds are distributed by the state as established by the Commonwealth. The regions have an expectation of receiving a reasonable distribution of 5311 operating funding based on this rural-service-based formula. The VTA has had growth in ridership, and a stable source of operating assistance with room for growth is valuable for future service planning.

The **Martha's Vineyard Airport** improvements may also be funded through federal and state sources, but those sources and funding estimates are not part of this MVTP.

For the **Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority (SSA)** ferry system and related infrastructure, the SSA funds a large portion of projects from revenues. However, there are additional needs and aging infrastructure that needs maintenance and / or replacement at times. Here is a list of immediate **SSA Projects in need of funding:**

Relocation of Administrative Offices	$ 6,600,000
Woods Hole Terminal Reconstruction Project	$61,750,000
M/V Martha's Vineyard Mid-Life Refurbishment Project	$10,000,000

As in all of the transportation system aspects, the maintenance and operations of the system needs are instrumental in providing a safe, reliable, and efficient system.

The two following tables outline the "highway" and "transit" funding estimated to be available for programming for the entire statewide transportation system and for Martha's Vineyard in the MVTP, as provided by the Massachusetts Department of Transportation (MassDOT) for highway and transit funded projects and programs. Following the statewide amounts, are the Martha's Vineyard estimates for both Highway and Transit in larger print.

	Federal funding in today's dollars w/ 1.5% increase starting in 2021	GANs repayment	Funding less GANs repayments	Funding w/non-federal match	Statewide infrastructure, bridge & other items	Funding available for MPOs	Berkshire	Boston	Cape Cod	Central Mass	Franklin	Martha's Vineyard	Merrimack Valley	Montachusett	Nantucket	Northern Middlesex	Old Colony	Pioneer Valley	Southeast Mass
						MPO % shares ▶	3.5596%	42.9671%	4.5851%	8.6901%	2.5397%	0.3100%	4.4296%	4.4596%	0.2200%	3.9096%	4.5595%	10.8099%	8.9601%
2016	600,000,000	44,440,000	555,560,000	694,450,000	519,875,000	174,575,000	6,214,172	75,009,815	8,004,438	15,170,742	4,433,681	541,183	7,732,974	7,785,347	384,065	6,825,184	7,959,747	18,871,383	15,642,095
2017	600,000,000	59,150,000	540,850,000	676,062,500	469,487,500	206,575,000	7,353,244	88,759,237	9,471,670	17,951,574	5,246,385	640,383	9,150,445	9,212,419	454,465	8,076,296	9,418,787	22,330,561	18,509,327
2018	600,000,000	68,463,700	531,536,300	664,420,375	448,845,375	215,575,000	7,673,608	92,626,326	9,884,329	18,733,683	5,474,968	668,283	9,549,110	9,613,783	474,265	8,428,120	9,829,142	23,303,442	19,315,736
2019	600,000,000	73,525,150	526,474,850	658,093,563	442,518,563	215,575,000	7,673,608	92,626,326	9,884,329	18,733,683	5,474,968	668,283	9,549,110	9,613,783	474,265	8,428,120	9,829,142	23,303,442	19,315,736
2020	600,000,000	77,951,600	522,048,400	652,560,500	436,985,500	215,575,000	7,673,608	92,626,326	9,884,329	18,733,683	5,474,968	668,283	9,549,110	9,613,783	474,265	8,428,120	9,829,142	23,303,442	19,315,736
						1st five years ▶	36,588,239	441,648,079	47,129,097	89,323,365	26,104,941	3,186,413	45,530,751	45,839,114	2,261,325	40,185,201	46,865,961	111,112,260	92,098,628
2021	620,000,000	82,588,050	537,411,950	671,764,938	449,845,703	221,919,234	7,899,437	95,352,259	10,175,219	19,285,000	5,636,083	687,950	9,830,134	9,896,710	488,222	8,676,154	10,118,407	23,989,247	19,884,185
2022	629,300,000	94,420,950	534,879,050	668,598,813	447,725,516	220,873,297	7,862,206	94,902,850	10,127,262	19,194,110	5,609,519	684,707	9,783,804	9,850,066	485,921	8,635,262	10,070,718	23,876,183	19,790,468
2023	638,739,500	114,931,804	523,807,696	654,759,620	438,458,135	216,301,485	7,699,462	92,938,475	9,917,639	18,796,815	5,493,409	670,535	9,581,291	9,646,181	475,863	8,456,523	9,862,266	23,381,974	19,380,829
2024	648,320,593	138,111,750	510,208,843	637,761,053	427,075,088	210,685,966	7,499,578	90,525,850	9,660,162	18,308,221	5,350,791	653,126	9,332,546	9,396,751	463,509	8,236,979	9,606,227	22,774,942	18,877,673
2025	658,045,401	144,321,750	513,723,651	642,154,564	430,017,191	212,137,373	7,551,242	91,149,277	9,726,711	18,434,950	5,387,653	657,626	9,396,837	9,460,478	466,702	8,293,723	9,672,404	22,931,838	19,007,721
						2nd five years ▶	38,511,930	464,868,512	49,606,993	94,019,700	27,477,455	3,353,944	47,924,611	48,249,186	2,380,218	42,298,641	49,330,022	116,954,184	96,940,877
2026	667,916,082	167,280,246	500,635,836	625,794,796	419,061,913	206,732,882	7,358,864	88,827,124	9,478,509	17,965,294	5,250,386	640,872	9,157,440	9,219,460	454,812	8,082,429	9,425,586	22,347,618	18,523,473
2027	677,934,824	▲GANs conclude	677,934,824	847,418,530	567,471,690	279,946,839	9,964,988	120,285,038	12,835,843	24,327,650	7,109,810	867,835	12,400,525	12,484,509	615,883	10,944,802	12,764,176	30,261,973	25,083,517
2028	688,103,846		688,103,846	860,129,807	575,983,765	284,146,042	10,114,463	122,089,314	13,028,380	24,692,575	7,216,457	880,853	12,586,533	12,671,777	625,121	11,108,974	12,955,639	30,715,903	25,459,770
2029	698,425,404		698,425,404	873,031,755	584,623,522	288,408,233	10,266,179	123,920,654	13,223,806	25,062,964	7,324,704	894,066	12,775,331	12,861,254	634,498	11,275,608	13,149,973	31,176,642	25,841,666
2030	708,901,785		708,901,785	886,127,231	593,392,875	292,734,356	10,420,172	125,779,464	13,422,163	25,438,908	7,434,574	907,477	12,966,961	13,054,781	644,016	11,444,742	13,347,223	31,644,291	26,229,291
						3rd five years ▶	48,124,665	580,901,594	61,989,101	117,487,402	34,335,940	4,191,102	59,886,790	60,292,381	2,974,330	52,856,555	61,642,597	146,145,427	121,137,716
2031	719,535,312		719,535,312	899,419,139	602,293,768	297,125,371	10,576,475	127,666,155	13,623,495	25,820,492	7,546,093	921,089	13,161,465	13,250,600	653,676	11,616,414	13,547,431	32,118,966	26,622,730
2032	730,328,341		730,328,341	912,910,426	611,328,174	301,582,252	10,735,122	129,581,148	13,827,848	26,207,799	7,659,234	934,905	13,358,887	13,449,362	663,481	11,790,660	13,750,643	32,600,740	27,022,071
2033	741,283,266		741,283,266	926,604,083	620,498,097	306,105,986	10,896,149	131,524,885	14,035,266	26,600,916	7,774,174	948,929	13,559,271	13,651,103	673,433	11,967,520	13,956,902	33,089,751	27,427,402
2034	752,402,515		752,402,515	940,503,144	629,805,568	310,697,576	11,059,591	133,497,738	14,245,795	26,998,930	7,890,786	963,162	13,762,660	13,856,869	683,535	12,147,002	14,166,256	33,586,097	27,838,813
2035	763,688,553		763,688,553	954,610,691	639,252,652	315,358,039	11,225,485	135,500,204	14,459,481	27,404,929	8,009,148	977,610	13,969,100	14,063,707	693,788	12,329,238	14,378,750	34,089,889	28,256,396
						4th five years ▶	54,492,821	657,770,110	70,191,886	133,033,066	38,879,436	4,745,695	67,811,383	68,270,844	3,367,912	59,850,834	69,799,982	165,485,443	137,167,412
2036	775,143,881		775,143,881	968,929,852	648,841,442	320,088,410	11,393,867	137,532,707	14,676,374	27,816,000	8,129,226	992,274	14,178,636	14,274,963	704,196	12,514,176	14,594,431	34,601,237	28,680,242
2037	786,771,040		786,771,040	983,463,799	658,574,063	324,889,736	11,564,775	139,596,688	14,896,519	28,233,243	8,251,225	1,007,158	14,391,316	14,488,783	714,757	12,701,889	14,813,348	35,120,296	29,110,445
2038	798,572,605		798,572,605	998,215,756	668,452,674	329,763,082	11,738,247	141,689,633	15,119,967	28,656,742	8,374,993	1,022,266	14,607,185	14,706,114	725,479	12,892,417	15,035,548	35,647,059	29,547,102
2039	810,551,194		810,551,194	1,013,188,993	678,479,465	334,709,528	11,914,320	143,814,978	15,346,767	29,086,593	8,500,618	1,037,600	14,826,293	14,926,706	736,361	13,085,804	15,261,081	36,181,765	29,990,308
2040	822,709,462		822,709,462	1,028,386,828	688,656,656	339,730,171	12,093,035	145,972,202	15,576,968	29,522,892	8,628,127	1,053,164	15,048,688	15,150,607	747,406	13,282,091	15,489,567	36,724,492	30,440,163
						5th five years ▶	58,704,244	708,605,218	75,616,595	143,315,472	41,884,243	5,112,461	73,052,118	73,546,873	3,628,198	64,476,378	75,194,404	178,274,809	147,768,260
						Total ▶	236,421,899	2,853,793,513	304,533,672	577,180,006	168,682,070	20,589,614	294,206,864	298,198,197	14,611,983	259,668,237	302,832,388	717,972,112	595,112,893
						Non-Federal Aid System Preservation 1st five years (bridges and roadways) ▶	17,798,000	214,835,500	22,925,500	43,450,500	12,698,500	1,550,000	22,148,000	22,298,000	1,100,000	19,548,000	22,797,500	54,049,500	44,800,500
						Non-Federal Aid System Preservation 2nd five years (bridges and roadways) ▶	18,064,970	218,058,033	23,269,383	44,102,258	12,888,978	1,573,250	22,480,220	22,632,470	1,116,500	19,841,220	23,139,463	54,860,243	45,472,508
						Non-Federal Aid System Preservation 3rd five years (bridges and roadways) ▶	18,331,840	221,280,686	23,618,286	44,764,016	13,078,466	1,596,600	22,812,440	22,968,840	1,133,000	20,134,440	23,481,426	55,670,836	46,144,616
						Non-Federal Aid System Preservation 4th five years (bridges and roadways) ▶	18,683,810	224,603,093	23,967,143	45,406,773	13,268,833	1,619,760	23,144,880	23,301,410	1,148,600	20,427,880	23,828,333	56,481,728	46,318,623
						Non-Federal Aid System Preservation 5th five years (bridges and roadways) ▶	18,966,330	227,726,830	24,301,030	46,067,630	13,480,410	1,643,000	23,478,330	23,636,330	1,166,000	20,720,330	24,166,360	57,292,470	47,488,530

HIGHWAY

Inflation factor	1.50%
	101.50%

SECTION 5307

Boston UZA	FFY 2015 Estimate	FFY 2016 Estimate	FFY 2017 Estimate	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
MBTA	$140,155,888	$142,258,223	$144,392,097	$146,557,978	$148,756,348	$150,987,693	$153,252,508	$155,551,296	$157,884,565	$160,252,834	$162,656,626	$165,096,476	$167,572,923	$170,086,517	$172,637,815	$175,227,382	$177,855,793	$180,523,629	$183,231,484	$185,979,956	$188,769,655	$191,601,200	$194,475,218	$197,392,347	$200,353,232	$203,358,530
BAT	$3,020,761	$3,066,072	$3,112,063	$3,158,744	$3,206,125	$3,254,217	$3,303,030	$3,352,576	$3,402,864	$3,453,907	$3,505,716	$3,558,302	$3,611,676	$3,665,851	$3,720,839	$3,776,652	$3,833,301	$3,890,801	$3,949,163	$4,008,400	$4,068,526	$4,129,554	$4,191,498	$4,254,370	$4,318,186	$4,382,958
MVRTA	$5,646,773	$5,731,474	$5,817,446	$5,904,708	$5,993,279	$6,083,178	$6,174,426	$6,267,042	$6,361,048	$6,456,463	$6,553,310	$6,651,610	$6,751,384	$6,852,655	$6,955,445	$7,059,776	$7,165,673	$7,273,158	$7,382,255	$7,492,989	$7,605,384	$7,719,465	$7,835,257	$7,952,786	$8,072,077	$8,193,159
LRTA	$3,739,138	$3,795,225	$3,852,154	$3,909,936	$3,968,585	$4,028,114	$4,088,536	$4,149,863	$4,212,111	$4,275,293	$4,339,422	$4,404,514	$4,470,582	$4,537,640	$4,605,705	$4,674,790	$4,744,912	$4,816,086	$4,888,327	$4,961,652	$5,036,077	$5,111,618	$5,188,292	$5,266,117	$5,345,109	$5,425,286
GATRA	$771,951	$783,530	$795,283	$807,213	$819,321	$831,611	$844,085	$856,746	$869,597	$882,641	$895,881	$909,319	$922,959	$936,803	$950,855	$965,118	$979,595	$994,289	$1,009,203	$1,024,341	$1,039,706	$1,055,302	$1,071,131	$1,087,198	$1,103,506	$1,120,059
CATA	$530,089	$538,041	$546,111	$554,303	$562,618	$571,057	$579,623	$588,317	$597,142	$606,099	$615,190	$624,418	$633,784	$643,291	$652,940	$662,735	$672,676	$682,766	$693,007	$703,403	$713,954	$724,663	$735,533	$746,566	$757,764	$769,131
NMRTA	$1,740,640	$1,766,759	$1,793,260	$1,820,159	$1,847,462	$1,875,173	$1,903,301	$1,931,851	$1,960,828	$1,990,241	$2,020,094	$2,050,396	$2,081,152	$2,112,369	$2,144,055	$2,176,215	$2,208,859	$2,241,991	$2,275,621	$2,309,756	$2,344,402	$2,379,568	$2,415,262	$2,451,490	$2,488,263	$2,525,587

Barnstable UZA	FFY 2015 Estimate	FFY 2016 Estimate	FFY 2017 Estimate	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
CCRTA	$ 6,911,030	$7,014,695	$7,119,916	$7,226,715	$7,335,115	$7,445,142	$7,556,819	$7,670,171	$7,785,224	$7,902,002	$8,020,532	$8,140,840	$8,262,953	$8,386,897	$8,512,701	$8,640,391	$8,769,997	$8,901,547	$9,035,070	$9,170,596	$9,308,155	$9,447,778	$9,589,494	$9,733,337	$9,879,337	$10,027,527
GATRA	$ 1,032,683	$1,048,173	$1,063,895	$1,079,854	$1,096,052	$1,112,492	$1,129,180	$1,146,118	$1,163,309	$1,180,759	$1,198,470	$1,216,447	$1,234,694	$1,253,215	$1,272,013	$1,291,093	$1,310,459	$1,330,116	$1,350,068	$1,370,319	$1,390,874	$1,411,737	$1,432,913	$1,454,407	$1,476,223	$1,498,366

Springfield UZA	FFY 2015 Estimate	FFY 2016 Estimate	FFY 2017 Estimate	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
PVTA	$ 11,954,100	$12,133,412	$12,315,413	$12,500,144	$12,687,646	$12,877,961	$13,071,131	$13,267,198	$13,466,206	$13,668,199	$13,873,222	$14,081,320	$14,292,540	$14,506,928	$14,724,532	$14,945,400	$15,169,581	$15,397,124	$15,628,081	$15,862,502	$16,100,440	$16,341,947	$16,587,076	$16,835,882	$17,088,420	$17,344,746

Worcester UZA	FFY 2015 Estimate	FFY 2016 Estimate	FFY 2017 Estimate	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
WRTA	$ 9,387,213	$9,528,021	$9,670,941	$9,816,005	$9,963,245	$10,112,694	$10,264,384	$10,418,350	$10,574,626	$10,733,245	$10,894,244	$11,057,657	$11,223,522	$11,391,875	$11,562,753	$11,736,194	$11,912,237	$12,090,921	$12,272,285	$12,456,369	$12,643,214	$12,832,863	$13,025,356	$13,220,736	$13,419,047	$13,620,333
MART	$ 44,225	$44,888	$45,562	$46,245	$46,939	$47,643	$48,357	$49,083	$49,819	$50,566	$51,325	$52,095	$52,876	$53,669	$54,474	$55,291	$56,121	$56,963	$57,817	$58,684	$59,564	$60,458	$61,365	$62,285	$63,220	$64,168

Massachusetts	FFY 2015 Estimate	FFY 2016 Estimate	FFY 2017 Estimate	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
MART	$ 2,992,457	$3,037,344	$3,082,904	$3,129,148	$3,176,085	$3,223,726	$3,272,082	$3,321,164	$3,370,981	$3,421,546	$3,472,869	$3,524,962	$3,577,836	$3,631,504	$3,685,976	$3,741,266	$3,797,385	$3,854,346	$3,912,161	$3,970,843	$4,030,406	$4,090,862	$4,152,225	$4,214,508	$4,277,726	$4,341,892
SRTA	$ 3,805,520	$3,862,603	$3,920,542	$3,979,350	$4,039,041	$4,099,626	$4,161,121	$4,223,537	$4,286,891	$4,351,194	$4,416,462	$4,482,709	$4,549,949	$4,618,199	$4,687,472	$4,757,784	$4,829,150	$4,901,588	$4,975,111	$5,049,738	$5,125,484	$5,202,366	$5,280,402	$5,359,608	$5,440,002	$5,521,602
BRTA	$ 1,711,046	$1,736,712	$1,762,762	$1,789,204	$1,816,042	$1,843,283	$1,870,932	$1,898,996	$1,927,481	$1,956,393	$1,985,739	$2,015,525	$2,045,758	$2,076,444	$2,107,591	$2,139,205	$2,171,293	$2,203,862	$2,236,920	$2,270,474	$2,304,531	$2,339,099	$2,374,186	$2,409,798	$2,445,945	$2,482,634

Out-Of-State UZAs	FFY 2015 Estimate	FFY 2016 Estimate	FFY 2017 Estimate	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
(RI) GATRA	$ 3,168,714	$3,216,245	$3,264,489	$3,313,456	$3,363,158	$3,413,605	$3,464,809	$3,516,782	$3,569,533	$3,623,076	$3,677,422	$3,732,584	$3,788,573	$3,845,401	$3,903,082	$3,961,628	$4,021,053	$4,081,369	$4,142,589	$4,204,728	$4,267,799	$4,331,816	$4,396,793	$4,462,745	$4,529,686	$4,597,631
(RI) SRTA	$ 2,976,566	$3,021,214	$3,066,533	$3,112,531	$3,159,219	$3,206,607	$3,254,706	$3,303,527	$3,353,079	$3,403,376	$3,454,426	$3,506,243	$3,558,836	$3,612,219	$3,666,402	$3,721,398	$3,777,219	$3,833,877	$3,891,386	$3,949,756	$4,009,003	$4,069,138	$4,130,175	$4,192,127	$4,255,009	$4,318,835
(NH) LRTA	$ 99,595	$101,089	$102,605	$104,144	$105,707	$107,292	$108,902	$110,535	$112,193	$113,876	$115,584	$117,318	$119,078	$120,864	$122,677	$124,517	$126,385	$128,281	$130,205	$132,158	$134,140	$136,152	$138,195	$140,267	$142,371	$144,507

Section 5307	FFY 2015 Estimate	FFY 2016 Estimate	FFY 2017 Estimate	FFY 2018 Estimate	FFY 2019 Estimate	FFY 2020 Estimate	FFY 2021 Estimate	FFY 2022 Estimate	FFY 2023 Estimate	FFY 2024 Estimate	FFY 2025 Estimate	FFY 2026 Estimate	FFY 2027 Estimate	FFY 2028 Estimate	FFY 2029 Estimate	FFY 2030 Estimate	FFY 2031 Estimate	FFY 2032 Estimate	FFY 2033 Estimate	FFY 2034 Estimate	FFY 2035 Estimate	FFY 2036 Estimate	FFY 2037 Estimate	FFY 2038 Estimate	FFY 2039 Estimate	FFY 2040 Estimate
MBTA	$140,155,888	$142,258,223	$144,392,097	$146,557,978	$148,756,348	$150,987,693	$153,252,508	$155,551,296	$157,884,565	$160,252,834	$162,656,626	$165,096,476	$167,572,923	$170,086,517	$172,637,815	$175,227,382	$177,855,793	$180,523,629	$183,231,484	$185,979,956	$188,769,655	$191,601,200	$194,475,218	$197,392,347	$200,353,232	$203,358,530
BAT	$3,020,761	$3,066,072	$3,112,063	$3,158,744	$3,206,125	$3,254,217	$3,303,030	$3,352,576	$3,402,864	$3,453,907	$3,505,716	$3,558,302	$3,611,676	$3,665,851	$3,720,839	$3,776,652	$3,833,301	$3,890,801	$3,949,163	$4,008,400	$4,068,526	$4,129,554	$4,191,498	$4,254,370	$4,318,186	$4,382,958
MVRTA	$5,646,773	$5,731,474	$5,817,446	$5,904,708	$5,993,279	$6,083,178	$6,174,426	$6,267,042	$6,361,048	$6,456,463	$6,553,310	$6,651,610	$6,751,384	$6,852,655	$6,955,445	$7,059,776	$7,165,673	$7,273,158	$7,382,255	$7,492,989	$7,605,384	$7,719,465	$7,835,257	$7,952,786	$8,072,077	$8,193,159
LRTA	$3,838,733	$3,896,314	$3,954,759	$4,014,080	$4,074,292	$4,135,406	$4,197,437	$4,260,399	$4,324,305	$4,389,169	$4,455,007	$4,521,832	$4,589,659	$4,658,504	$4,728,382	$4,799,307	$4,871,297	$4,944,366	$5,018,532	$5,093,810	$5,170,217	$5,247,770	$5,326,487	$5,406,384	$5,487,480	$5,569,792
CCRTA	$6,911,030	$7,014,695	$7,119,916	$7,226,715	$7,335,115	$7,445,142	$7,556,819	$7,670,171	$7,785,224	$7,902,002	$8,020,532	$8,140,840	$8,262,953	$8,386,897	$8,512,701	$8,640,391	$8,769,997	$8,901,547	$9,035,070	$9,170,596	$9,308,155	$9,447,778	$9,589,494	$9,733,337	$9,879,337	$10,027,527
GATRA	$4,973,348	$5,047,948	$5,123,668	$5,200,523	$5,278,530	$5,357,708	$5,438,074	$5,519,645	$5,602,440	$5,686,476	$5,771,774	$5,858,350	$5,946,225	$6,035,419	$6,125,950	$6,217,839	$6,311,107	$6,405,774	$6,501,860	$6,599,388	$6,698,379	$6,798,855	$6,900,837	$7,004,350	$7,109,415	$7,216,056
CATA	$530,089	$538,041	$546,111	$554,303	$562,618	$571,057	$579,623	$588,317	$597,142	$606,099	$615,190	$624,418	$633,784	$643,291	$652,940	$662,735	$672,676	$682,766	$693,007	$703,403	$713,954	$724,663	$735,533	$746,566	$757,764	$769,131
NMRTA	$1,740,640	$1,766,759	$1,793,260	$1,820,159	$1,847,462	$1,875,173	$1,903,301	$1,931,851	$1,960,828	$1,990,241	$2,020,094	$2,050,396	$2,081,152	$2,112,369	$2,144,055	$2,176,215	$2,208,859	$2,241,991	$2,275,621	$2,309,756	$2,344,402	$2,379,568	$2,415,262	$2,451,490	$2,488,263	$2,525,587
PVTA	$11,954,100	$12,133,412	$12,315,413	$12,500,144	$12,687,646	$12,877,961	$13,071,131	$13,267,198	$13,466,206	$13,668,199	$13,873,222	$14,081,320	$14,292,540	$14,506,928	$14,724,532	$14,945,400	$15,169,581	$15,397,124	$15,628,081	$15,862,502	$16,100,440	$16,341,947	$16,587,076	$16,835,882	$17,088,420	$17,344,746
WRTA	$9,387,213	$9,528,021	$9,670,941	$9,816,005	$9,963,245	$10,112,694	$10,264,384	$10,418,350	$10,574,626	$10,733,245	$10,894,244	$11,057,657	$11,223,522	$11,391,875	$11,562,753	$11,736,194	$11,912,237	$12,090,921	$12,272,285	$12,456,369	$12,643,214	$12,832,863	$13,025,356	$13,220,736	$13,419,047	$13,620,333
MART	$3,036,682	$3,082,232	$3,128,466	$3,175,393	$3,223,024	$3,271,369	$3,320,440	$3,370,246	$3,420,800	$3,472,112	$3,524,194	$3,577,057	$3,630,712	$3,685,173	$3,740,451	$3,796,557	$3,853,506	$3,911,308	$3,969,978	$4,029,528	$4,089,971	$4,151,320	$4,213,590	$4,276,794	$4,340,946	$4,406,060
SRTA	$6,782,086	$6,883,818	$6,987,075	$7,091,881	$7,198,259	$7,306,233	$7,415,827	$7,527,064	$7,639,970	$7,754,570	$7,870,888	$7,988,951	$8,108,786	$8,230,417	$8,353,874	$8,479,182	$8,606,370	$8,735,465	$8,866,497	$8,999,495	$9,134,487	$9,271,504	$9,410,577	$9,551,736	$9,695,012	$9,840,437
BRTA	$1,711,046	$1,736,712	$1,762,762	$1,789,204	$1,816,042	$1,843,283	$1,870,932	$1,898,996	$1,927,481	$1,956,393	$1,985,739	$2,015,525	$2,045,758	$2,076,444	$2,107,591	$2,139,205	$2,171,293	$2,203,862	$2,236,920	$2,270,474	$2,304,531	$2,339,099	$2,374,186	$2,409,798	$2,445,945	$2,482,634
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TRANSIT

Martha's Vineyard only estimated federal and state funds:

Estimated FHWA and State Funds

FFY	Amount
2016	$541,183
2017	$640,383
2018	$668,283
2019	$668,283
2020	$668,283
5 yr subtotal	**$3,186,415**
2021	$687,850
2022	$684,707
2023	$670,535
2024	$653,126
2025	$657,626
5 yr subtotal	**$3,353,844**
2026	$640,872
2027	$867,835
2028	$880,853
2029	$894,066
2030	$907,477
5 yr subtotal	**$4,191,103**
2031	$921,089
2032	$934,905
2033	$948,929
2034	$963,162
2035	$977,610
5 yr subtotal	**$4,745,695**
2036	$992,274
2037	$1,007,158
2038	$1,022,266
2039	$1,037,600
2040	$1,053,164
5 yr subtotal	**$5,112,462**
	$20,589,519

Estimated FTA and State Funds (for VTA)

FFY	5311
2015	$853,978
2016	$866,787
2017	$879,789
2018	$892,986
2019	$906,381
2020	$919,976
2021	$933,776
2022	$947,783
2023	$961,999
2024	$976,429
2025	$991,076
2026	$1,005,942
2027	$1,021,031
2028	$1,036,347
2029	$1,051,892
2030	$1,067,670
2031	$1,083,685
2032	$1,099,940
2033	$1,116,440
2034	$1,133,186
2035	$1,150,184
2036	$1,167,437
2037	$1,184,948
2038	$1,202,722
2039	$1,220,763
2040	$1,239,075
	$26,912,222

FHWA = Federal Highway Administration
FTA = Federal Transit Administration

17.2 Proposed Transportation Projects

Under Federal laws and guidance, the MVTP project recommendations must fit within the estimated available funds for the region. The MVC and Joint Transportation Committee prepared a comprehensive list of possible projects, and these were evaluated according to the criteria in this plan in order to prioritize the projects and allow selection of a list of projects that could be financed on the basis of the annual budget provided by MassDOT and the Federal Highway Administration, or from other assured sources.

Municipality	Recommended MVTP Projects withen estimated available funds	Cost Estimate	Timeframe based on Available Funds
TISBURY	Beach Road - Winds Up to Five Corners, SUP, sidewalks, and resurfacing	$2,000,000	2016-2019
OAK BLUFFS	New SUP: From Drawbridge / Beach Road - Eastville Avenue - New York Ave. to beginning of Lake Ave. (Our Market)	$1,300,000	2016-2019
TISBURY	Main Street Tisbury safety / pedestrian improvements	$500,000	2021-2025
TISBURY	Five Corners pedestrian improvements	$150,000	2021-2025
EDGARTOWN	Upper Main Street Edgartown improvements	$500,000	2021-2025
MULTI-TOWN	Bus Stops (10 @ $15,000)	$150,000	2021-2025
MULTI-TOWN: ISLAND-WIDE	Permanent Traffic Count Locations	$100,000	2021-2025
EDGARTOWN	Edg VH Rd and Beach Rd (Triangle) intersection improvements	$1,000,000	2021-2025
OAK BLUFFS	Eastville intersections at Temahigan and County	$700,000	2021-2025
TISBURY	Tisbury Beach Street / State Road Sidewalk/ Pedestrian improvements	$250,000	2026-2030
TISBURY	Water Street pedestrian improvements	$300,000	2026-2030
EDGARTOWN	Main Street Edgartown Intersection and sidewalk improvements	$500,000	2026-2030

OAK BLUFFS	Bike Ped Improvements/traffic calming in the High School /YMCA area of Edgartown-Vineyard Haven Road	$400,000	2026-2030
TISBURY	Tisbury State Road Tashmoo Overlook improvements	$960,000	2026-2030
MULTI-TOWN: ED and WT	Resurface a portion of the SUPs in State Forest	$1,400,000	2026-2030
MULTI-TOWN: ED and WT	Resurface a portion of the SUPs in State Forest	$1,400,000	2031-2035
TISBURY	Tisbury Connector Road including new SUPs	$2,500,000	2031-2035
MULTI-TOWN: OB, TI, and ED	Edgartown- Vineyard Haven Road, resurfacing with bike ped improvements for a section	$5,000,000	2036-2040

17.3 Summary

The Martha's Vineyard Transportation Plan (MVTP) has assessed both federal highway/bridge funding and transit funding from an operational and enhancement standpoint, and demonstrates that proposed investments are consistent with estimated revenue sources provided by MassDOT. In sum, the MVTP complies with applicable federal regulations and shows the required financial constraint.

18. Conclusion

APPENDIX 1
Air Quality Conformity For Martha's Vineyard

Although most of Massachusetts was designated on May 21, 2012, by the United States Environmental Protection Agency as "unclassifiable/attainment" for the latest ozone standard, Dukes County remained an ozone non-attainment area. However, the county is also classified as an 'isolated rural area," and as such, for transportation improvement programs composed entirely of exempt projects (40 CFR 93.126), an air quality conformity analysis and determination is not required. Further details and background information are provided below:

Introduction

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment and maintenance areas to perform air quality conformity determinations prior to the approval of Long-Range Transportation Plans (LRTPs) and Transportation Improvement Programs (TIPs), and at such other times as required by regulation. A nonattainment area is one that the U.S. Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A maintenance area is a nonattainment area that now meets the standards and has been re-designated as maintaining the standard. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals.

The entire Commonwealth of Massachusetts was previously classified as nonattainment for ozone, and was divided into two nonattainment areas. The Eastern Massachusetts ozone nonattainment area included Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester counties. Berkshire, Franklin, Hampden, and Hampshire counties comprised the Western Massachusetts ozone nonattainment area. With these classifications, the 1990 Clean Air Act Amendments (CAAA) required the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation to achieve attainment of the ozone standard.

Legislative and Regulatory Background

The 1970 Clean Air Act defined a one-hour national ambient air quality standard (NAAQS) for ground-level ozone. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The entire commonwealth of Massachusetts was classified as being in serious nonattainment for the one-hour ozone standard, with a required attainment date of 1999.The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one- hour standard, effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004.The eight-hour

standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts as a whole was classified as being in moderate nonattainment for the eight-hour standard, and was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

In March 2008, EPA published revisions to the eight-hour ozone NAAQS establishing a level of 0.075 ppm, (March 27, 2008; 73 FR 16483). In 2009, EPA announced it would reconsider this standard because it fell outside of the range recommended by the Clean Air Scientific Advisory Committee. However, EPA did not take final action on the reconsideration so the standard would remain at 0.075 ppm.

After reviewing data from Massachusetts monitoring stations, EPA sent a letter on December 16, 2011 proposing that only Dukes County would be designated as nonattainment for the new proposed 0.075 ozone standard. Massachusetts concurred with these findings.

On May 21, 2012, (77 FR 30088), the final rule was published in the Federal Register, defining the 2008 NAAQS at 0.075 ppm, the standard that was promulgated in March 2008. A second rule published on May 21, 2012 (77 FR 30160), revoked the 1997 ozone NAAQS to occur one year after the July 20, 2012 effective date of the 2008 NAAQS.

Also on May 21, 2012, the air quality designations areas for the 2008 NAAQS were published in the Federal Register. In this Federal Register, the only area in Massachusetts that was designated as nonattainment is Dukes County. All other Massachusetts counties are classified as unclassifiable/attainment as of July 20, 2013.

Martha's Vineyard / Dukes County has historically programmed – and continues to program – in its TIP only "Exempt" transportation projects as defined in 40 CFR 93.126, so this current FFY 2016-19 Transportation Improvement Program does not require an air quality conformity analysis or determination for the 2008 NAAQS. As part of the interagency conformity consultation process, Martha's Vineyard / Dukes County was reaffirmed as an "isolated rural area" at the most recent interagency group meeting, held on April 30, 2014.

APPENDIX 2 Public Comments

PUBLIC COMMENT PERIOD through Monday, July 20, 2015

Please submit all comments to:
Joint Transportation Committee
c/o Martha's Vineyard Commission (MVC)
PO Box 1447
Oak Bluffs, MA 02557

or via email with the subject "public comment" to:
leclerc@mvcommission.org

APPENDIX 3
Transportation Glossary

Accessibility: The ability to reach a location; a way or means of approach

Average Daily Traffic (ADT): The mean daily number of vehicles on a particular road, typically measured by automated traffic counters

Capacity: The volume of vehicles the road was designed to carry in a unit of time, such as an hour; can also be applied to transit or bicycle/pedestrian paths

Congestion Mitigation and Air Quality Improvement Program (CMAQ): A program, jointly administered by the FHWA and FTA, to fund projects that reduce air pollutants from transportation-related sources.

Corridor Access Management: A range of ways to preserve the safe, efficient traffic operations and character of roads through application of land use control measures, design approaches, and coordination of transportation and land use planning.

Environmental Justice: The fair treatment and meaningful involvement of all people regardless of race, color, national origin, culture, education, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. In transportation, this requires review of whether the benefits and burdens of transportation investments appear to be distributed evenly across the regional demographic profile and, if necessary, mitigation of such effects.

Federal Highway Administration (FHWA): An agency of the U.S. Department of Transportation (DOT) charged with ensuring that America's roads and highways are safe and technologically up-to-date. FHWA provides financial and technical support to State, local, and tribal governments for constructing, improving, and preserving America's highway system.

Intermodal: The integration of various modes in a whole transportation system or facility

Intelligent Transportation Systems (ITS): Intelligent Transportation Systems encompass a broad range of wireless and wire-line communications-based information, control and electronics technologies that, when integrated into the transportation system infrastructure and vehicles themselves, help monitor and manage traffic flow, reduce congestion, provide alternate routes to travelers, enhance productivity, and increase safety.

Joint Transportation Committee: The Joint Transportation Committee (JTC) advises the Committee of Signatories – the EOT, MassDOT, and the VTA – which is responsible for transportation planning on the Vineyard. The JTC's members widely represent Island interests to ensure a balanced consideration of transportation issues.

Level of Service (LOS): A rating of A through F (similar to report card grades) that summarizes transportation operating conditions. It is usually used to describe a section of road or an intersection as experienced by drivers, but can also be applied for users of other modes of transportation.

Livability: In a transportation context, a concept that emphasizes modes of transportation other than the personal automobile, and recognizes that the infrastructure required to serve the personal automobile can e detrimental to the health, environment, and economy of communities.

Martha's Vineyard Regional Transit Authority (VTA): The VTA provides year-round public transit service to the six towns of Martha's Vineyard. The VTA's transportation services consist of both fixed route bus and paratransit services (known as the "Lift").

Massachusetts Association of Regional Planning Agencies (MARPA): MARPA is a statewide organization composed of the Commonwealth's 13 regional planning agencies (RPAs). MARPA coordinates the activities of the RPAs on a statewide basis by providing information and technical assistance to its members and other groups and organizations, while also maintaining an active dialogue and liaison with the federal and state levels on important planning policies, programs, legislation, topical issues, and special projects and initiatives working on behalf of its member agencies and, by extension, the RPAs' member cities and towns across Massachusetts.

Metropolitan Planning Organization (MPO): The Martha's Vineyard MPO consists of the following:

- Massachusetts Department of Transportation (MassDOT) Secretary
- Martha's Vineyard Regional Transportation Authority (VTA) Chair
- Martha's Vineyard Commission (MVC) Chair
- Mobility: The ability to move or be moved easily.
- Mode: A way people or goods get from one place to another, such as using cars and trucks, freight and passenger trains, walking, bicycling, and riding buses.

Paratransit: Use of small buses or vans on flexible routes, usually serving people who cannot easily get around

Regional Transportation Plan (RTP): The guiding document for all federally funded transportation planning efforts, with a twenty year horizon and updated every three years.

State Implementation Plan (SIP): The statement of how the transportation, environmental, and health communities expect to meet federal air quality safety standards.

STP: FHWA program that provides flexible funding that can be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intra-city and intercity bus terminals and facilities. A portion of funds reserved for rural areas may be spent on rural minor collectors.

Transportation Enhancements (TE): FHWA funding program for projects including one of 12 eligible activities and relate to surface transportation. For example, projects can include creation of bicycle and pedestrian facilities, streetscape improvements, refurbishment of historic transportation facilities, and other investments that enhance communities and access.

Transportation Improvement Program (TIP): The multi-year capital program of transportation projects updated each year

Traffic Calming: Measures to reduce the negative effects of vehicles, and improve conditions for walking or bicycling. A familiar example is the orange barrels with the warning to stop for pedestrians.

Traffic Model: A traffic model is a tool for representing and analyzing the major ways people get around. Usually this tool is a software package which incorporates a road network, land use data, and a mathematical formula to distribute and route trips. The model is calibrated to existing traffic counts. Then it can be used to forecast traffic and test the effect of changes in the road network.

Travel Demand Management (TDM): TDM is a combination of strategies or actions whose goal is to encourage travelers to use alternatives to driving alone. TDM strategies may be developed for a single work site, specific corridor, or area.

Travel System Management (TSM): TSM is a combination of low-cost strategies that use a total approach to transportation system management. The goal is to shift emphasis from expanding capacity to making better use of existing transportation systems.

Travel Time: The time it takes to travel door-to-door.

Unified Work Program (UWP): The statement of transportation planning tasks to be completed for the year & the budget for them

Vehicle Miles of Travel (VMT): The sum of all the miles traveled by vehicles (not people) in a specified amount of time

Volume: The number of vehicles that actually pass through a given mile of road in a unit of time such as a day; can also be applied to transit or bicycle/pedestrian paths.

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